TECHNICAL REPORT

TR-196

Femto Access Point Service Data Model

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Issue History

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Summary

Femto Access Point (FAP), or "Femtocell" in general, is a terminology for a new type of CPE device emerging in the mobile industry. In other words, it is a small-scale cellular base station designed specifically for indoor coverage. As such, it communicates to the user's mobile handset over the standard-based radio interface using licensed spectrum and further connects to the mobile network infrastructure over the fixed broadband connection.

There are two types of FAP devices: 1) standalone and 2) integrated. The standalone FAP is a device that is connected to a physically separate RGW via an Ethernet cable, while the integrated FAP is a device that has FAP and RGW functionalities combined into a single CPE device.

The notable benefits of femtocell include the followings:

- Improved in-building signal coverage and quality
- Offloading the macro base stations from indoor users
- Introduction of 3G coverage and service to users irrespective of the presence or absence of the 3G macrocell coverage in the surrounding area
- Enables the introduction of traffic-intensive services that require high data rate
- Enables the introduction of new "femtozone" applications and services

There are several main characteristics that the femtocell separates itself from the traditional cellular network infrastructure as follows:

1. It is a consumer CPE device that is located at the end-user's premise.
2. The intended coverage and the capacity are orders of magnitude smaller than the traditional macrocells.
3. The number of devices deployed and to be managed is orders of magnitude higher than the traditional macrocell based system.
4. It uses the existing fixed broadband technology, such as xDSL, as the backhaul to the mobile network.

It is important to note that the above characteristics further present the following implications from Operation and Management perspective:

1. The physical control of the device itself is outside the control of the mobile operator that provides the service. This includes aspects such as the physical state and condition of the device itself, and the location of the device where it may be installed and operated.
2. Since the number of devices to manage is order of magnitude higher than the traditional macrocells, different approach of device management may be required.
3. Maintaining the same level of Quality of Service and Grade of Service with the traditional macrocell based system present challenges to the mobile operators due to the fact that the tight control of the device is neither necessarily guaranteed nor

possible. Some of the constraints include the general nature of the existing fixed broadband technology (e.g. xDSL), and the general characteristics of the CPE device (e.g. absence of HW/SW support of redundancy and the concept of availability). This impacts the area such as real-time device operation, management and service availability.

4. From the perspective of mobile operators who provide the FAP service to end users, support and consideration for the multi-vendor interoperable consumer CPE product paradigm is an important aspect that needs to be taken into account for the successful FAP service deployment and acceptance in the market. This includes the needs for inter-operability across multiple vendor products.

The characteristics of the femtocell service described above illustrates that the management of FAP requires a fundamentally different management approach from the traditional cellular infrastructure network elements. As the remote management protocol specifically designed for consumer CPE devices, TR-069 CWMP naturally fit the FAP remote management.

Further, FAP management based on the standardized Data Model ensures interoperability across multiple vendors. This means:

- From mobile operator perspective, it ensures easier and smoother OAM&P by reusing the technology that is already proven in the mass CPE deployment today.
- From vendor perspective, it encourages and promotes the ecosystem across the whole femto industry, and
- From the end user perspective, it allows simple and error-free “plug-and-play” installation.

1 Purpose and Scope

1.1 Purpose

The purpose of this Technical Report is to specify the Data Model for Femto Access Point (FAP) for the remote management purpose using the TR-069 CWMP within the scope defined in the following section.

This Technical Report defines FAPService as the container associated with the remote management of objects for FAP devices. CPE devices making use of a FAPService object MUST adhere to all of the data-hierarchy requirements defined in TR-106 [4]. In the context of TR-106 [4], the FAPService object is a service object.

1.2 Scope

The scope of this FAP Data Model is UMTS FDD Home NodeB (i.e. "3G HNB"). However, the structure and organization of the Data Model takes it into consideration in such a way that it can be extended to cover other type(s) of FAP device based on other radio interface technologies, if such a need arises in the future.

In the preceding summary section, two types of FAP devices are described (i.e. standalone and integrated). Both types of devices are anticipated in the market, and both types of devices are expected to use the TR-098 [3] based device.

2 References and Terminology

2.1 Conventions

In this Technical Report, several words are used to signify the requirements of the specification. These words are always capitalized.

MUST	This word, or the terms “REQUIRED” or “SHALL”, mean that the definition is an absolute requirement of the specification.
MUST NOT	This phrase, or the phrase “SHALL NOT”, mean that the definition is an absolute prohibition of the specification.
SHOULD	This word, or the adjective “RECOMMENDED”, means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications must be understood and carefully weighed before choosing a different course.
SHOULD NOT	This phrase, or the phrase "NOT RECOMMENDED" means that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
MAY	This word, or the adjective “OPTIONAL”, means that this item is one of an allowed set of alternatives. An implementation that does not include this option MUST be prepared to inter-operate with another implementation that does include the option.

2.2 References

The following references are of relevance to this Technical Report. At the time of publication, the editions indicated were valid. All references are subject to revision; users of this Technical Report are therefore encouraged to investigate the possibility of applying the most recent edition of the references listed below.

A list of currently valid Broadband Forum Technical Reports is published at www.broadband-forum.org.

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[2] TR-069 Amendment 2, *CPE WAN Management Protocol,* Broadband Forum Technical Report, 2007

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2.3 Definitions

The following terminology is used throughout this Technical Report.

ACS Auto-Configuration Server. This is a component in the broadband network responsible for auto-configuration of the CPE for advanced services.

CPE Customer Premises Equipment; refers to any TR-069-enabled device and therefore covers both Internet Gateway devices and LAN-side end devices.

CWMP CPE WAN Management Protocol. Defined in TR-069 Amendment 2 [2], CWMP is a communication protocol between an ACS and CPE that defines a mechanism for secure auto-configuration of a CPE and other CPE management functions in a common framework.

2.4 Abbreviations

This Technical Report defines the following abbreviations:

3DES	Triple DES (Data Encryption Standard)
3GPP	3rd Generation Partnership Project
ACL	Access Control List
AES	Advanced Encryption Standard
AICH	Acquisition Indicator Channel
ANSI	American National Standards Institute
APAICH	Access Preamble Acquisition Indicator Channel
ARFCN	Absolute Radio Frequency Channel Number
ASCII	American Standard Code for Information Interchange
BCC	Base station Color Code
BCCH	Broadcast Control Channel
BCH	Broadcast Channel
BSIC	Base Station Identity Code
CBC	Cipher Block Chaining
CBS	Cell Broadcast Services
CCPCH	Common Control Physical Channel
CD/CA-ICH	Collision Detection Channel Assignment Indicator Channel
CI	Cell ID
CN	Core Network
CS	Circuit Switching
CSG	Closed Subscriber Group
CPICH	Common Pilot Channel
CTCH	Common Traffic Channel
DCH	Dedicated Channel
DCS	Digital Cellular System
DHCP	Dynamic Host Configuration Protocol
DL	Downlink

DN	Distinguished Name
DNS	Domain Name System
DPD	Dead Per Detection
DPDCH	Dedicated Physical Data Channel
DRX	Discontinuous Reception
DSCP	DiffServ Code Point
EDGE	Enhanced Data rate for GSM Evolution
ESP	Encapsulating Security Payload
FACH	Forward Access Channel
FAP	Femto Access Point
FAP-GW	FAP Gateway
FDD	Frequency Division Duplex
FFS	For Future Study
FGW	Femto Gateway
FTP	File Transfer Protocol
GERAN	GSM EDGE Radio Access Network
GPRS	General Packet Radio Service
GPS	Global Positioning System
GSM	Global System for Mobile
GTP-U	GPRS Tunneling Protocol – User Data
HCS	Hierarchical Cell Structure
HMAC	Hash Message Authentication Code
HNB	Home NodeB
HNBAP	Home NodeB Application Part
HNB-GW	Home NodeB GateWay
HO	Handover
HSDPA	High-Speed Downlink Packet Access
HSPA	High-Speed Packet Access
HSPDSCH	High-Speed Physical Downlink Shared Channel
HSS	Home Subscriber Server
HSSCCH	High-Speed Shared Control Channel
HSUPA	High-Speed Uplink Packet Access
HTTP	Hyper Text Transfer Protocol
HTTPS	Hyper Text Transfer Protocol over Secure Socket Layer
HW	Hardware
ICCID	Integrated Circuit Card ID
IE	Information Element
IKE	Internet Key Exchange
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
LAC	Location Area Code
LAI	Location Area ID
LIA	Local IP Access
MAC	Message Authentication Code
MAP	Mobile Application Part
MCC	Mobile Country Code

MIB	Master Information Block
MNC	Mobile Network Code
MS	Mobile Station
MSC	Mobile Switching Center
MSISDN	Mobile Station International ISDN Number
NAT	Network Address Translation
NAPT	Network Address Port Translation
NCC	Network Color Code
NL	Neighbor List
NTP	Network Time Protocol
OUI	Organizationally Unique Identifier
PCH	Paging Channel
PCCPCH	Primary Common Control Physical Channel
PCPICH	Primary Common Pilot Channel
PCS	Personal Communication System
PICH	Paging Indication Channel
PLMN	Public Land Mobile Network
PRACH	Physical Random Access Channel
PRF	Pseudo Random Function
PS	Packet Switching
PSC	Primary Scrambling Code
PSCH	Primary Synchronization Channel
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RAB	Radio Access Bearer
RAC	Routing Area Code
RACH	Random Access Channel
RAI	Routing Area ID
RAN	Radio Access Network
RANAP	Radio Access Network Application Part
RAT	Radio Access Technology
REM	Radio Environment Measurement
RF	Radio Frequency
RGW	Residential Gateway
RNC	Radio Network Controller
RNS	Radio Network Subsystem
RRC	Radio Resource Control
RSCP	Received Signal Code Power
RSSI	Received Signal Strength Indication
RTCP	Real Time Control Protocol
RTO	Retransmit Timeout
RTP	Real Time Protocol
RTT	Round Trip Time
RUA	RANAP User Adaption
SA	Security Association
SAC	Service Area Code

SAD	Security Association Database
SAI	Service Area ID
SCCPCH	Secondary Common Control Physical Channel
SCH	Synchronization Channel
SCTP	Stream Control Transmission Protocol
SecGW	Security Gateway
SF	Spreading Factor
SFTP	SSH File Transfer Protocol
SGSN	Serving GPRS Support Node
SHA	Secure Hash Algorithm
SIB	System Information Block
SIM	Subscriber Identity Module
SMS	Short Message Service
SPD	Security Policy Database
SPI	Security Parameter Index
SRNS	Serving Radio Network Subsystem
SSCH	Secondary Synchronization Channel
SSH	Secure Shell
TCP	Transmission Control Protocol
TR	Technical Report
TS	Technical Specification
TTI	Transmit Time Interval
UARFCN	UMTS Absolute Radio Frequency Channel Number
UDP	User Datagram Protocol
UE	User Equipment
UICC	Universal Integrated Circuit Card
UL	Uplink
UMTS	Universal Mobile Telecommunication System
URA	UTRAN Registration Area
URL	Uniform Resource Locator
URN	Uniform Resource Name
USIM	Universal Subscriber Identity Module
UTC	Coordinated Universal Time
UTF	Unicode Transformation Format
UTRAN	UMTS Terrestrial Radio Access Network
XCBC	eXtended Cipher Block Chaining
WCDMA	Wideband Code Division Multiple Access

3 Technical Report Impact

3.1 Energy Efficiency

TR-196 has no impact on Energy Efficiency.

3.2 IPv6

TR-196 does not specifically address IPv6, but is intended to support IPv6 addresses as well as IPv4. Enhancements may be required in the future to accommodate full IPv6-based Femtocell service.

3.3 Security

The FAP service will be based on the underlying security mechanism between the FAP and the SecGW in the mobile operator's network. The exact description and specification of the security mechanism is found in the 3GPP specification under SA WG3.

4 Data Model Definition

Figure 1 below shows the general overall view of the femtocell system. Both standalone and integrated FAP product types are shown.

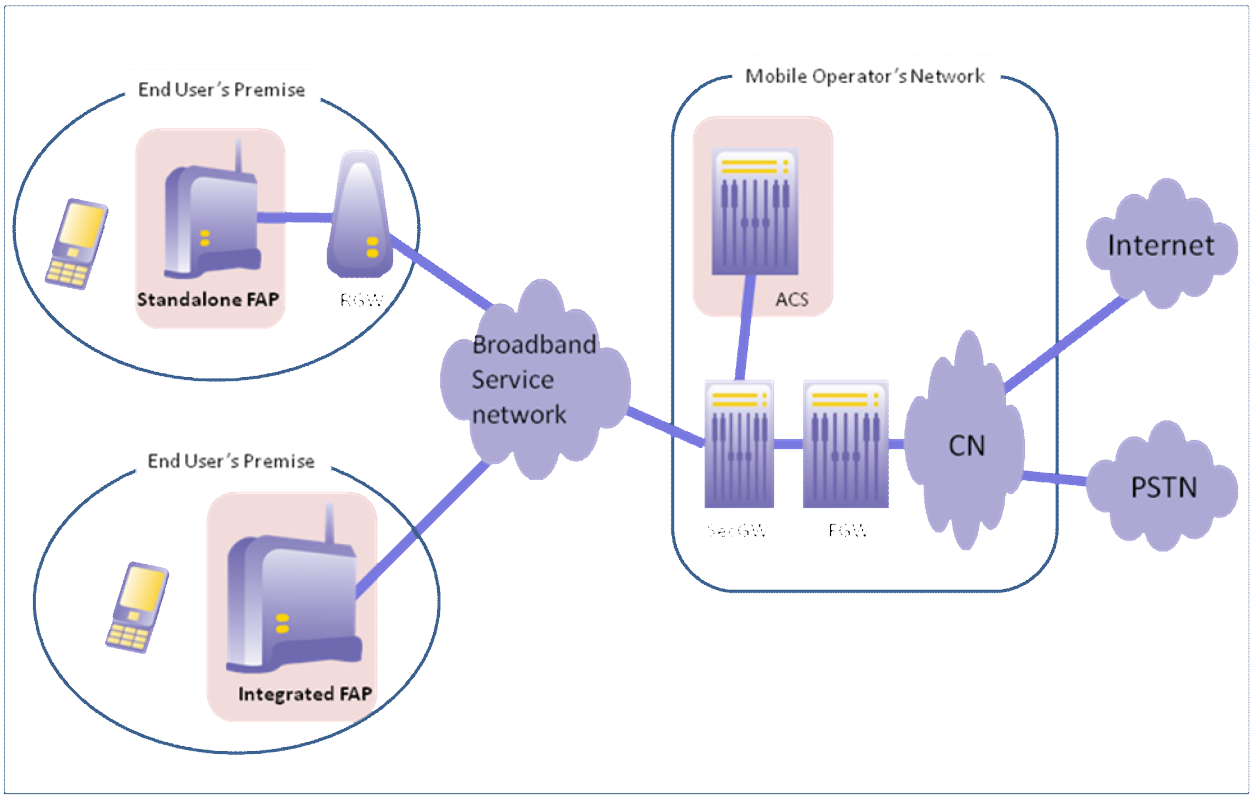

Figure 1 – General Overall View of The Femtocell System

Figure 2 below illustrates the internal structure of the FAPService object.

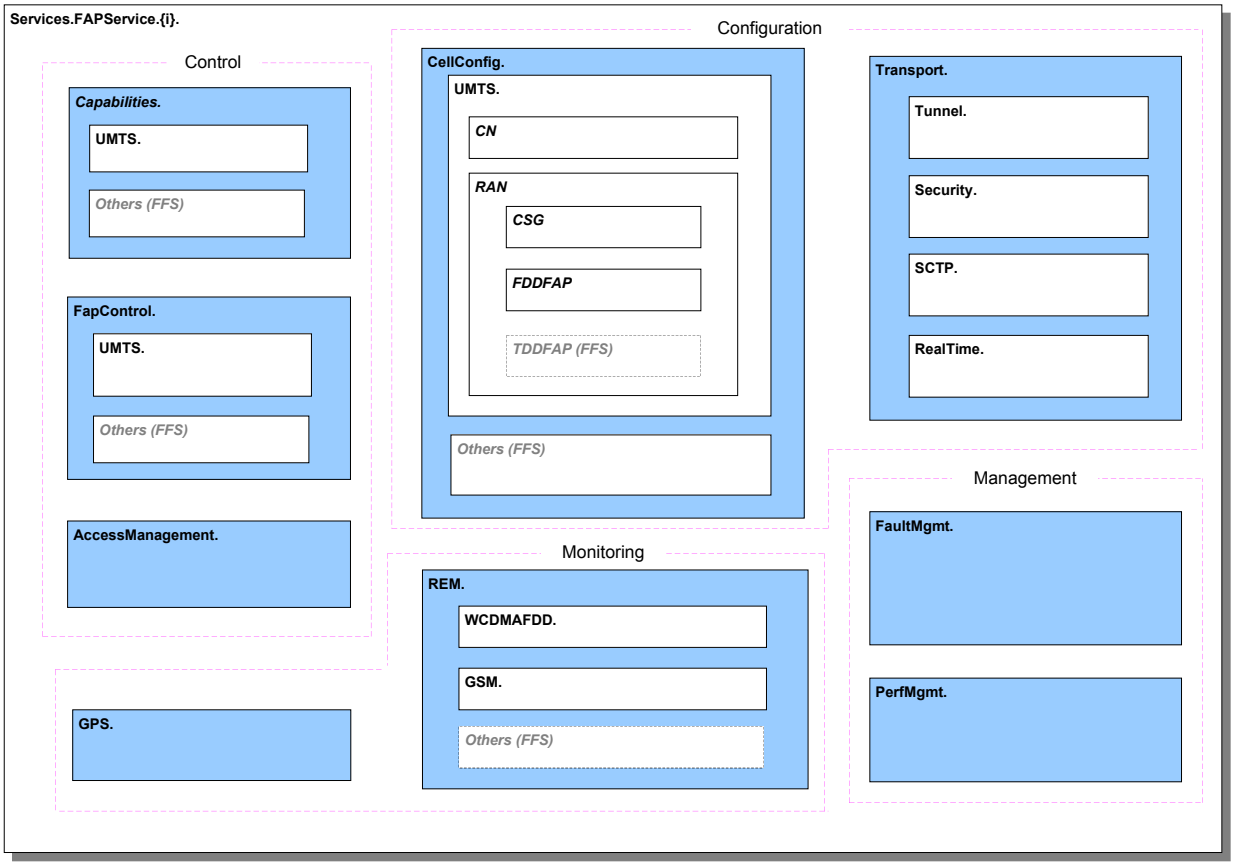

Figure 2 – Services.FAPServices.{i}. Structure

4.1 Device Data Model

Table 1 – FAP Data Model

Name	Type	Write	Description	Object Default
FAPServiceNumberOfEntries	unsignedInt	-	The number of entries in the FAPService table.	-
.FAPService.{i}.	object	-	The Femto Access Point (FAP) Service Object.	-
DeviceType	string	-	The type of FAP device. Enumeration of: *Standalone* *Integrated*	-
DNPrefix	string (256)	W	Specifies the Distinguished Name (DN) Prefix to be used when constructing full DNs which uniquely identify a FAP object, e.g. *.FaultMgmt.CurrentAlarm.{i}.ManagedObjectInstance*. Encodes the Managed Object Prefix representation in string format as defined in 3GPP-TS.32.300 [25]. Examples: "DC=a1.companyNN.com,SubNetwork=1,IRPAgent=1" and "SubNetwork=1"	-
.FAPService.{i}.Capabilities.	object	-	This object contains parameters relating to the hardware capabilities of the FAP device.	-
GPSEquipped	boolean	-	Indicates whether the FAP is equipped with a GPS receiver or not.	-
MaxTxPower	unsignedInt	-	Indicates the maximum possible transmit power in *dBm* that the FAP hardware can support.	-
SupportedSystems	string	-	Comma-separated list of strings. Each entry is a type of system that the FAP supports. Each list item is an enumeration of: *UMTS* Other values are "For Future Study" (FFS).	-
MaxChildSAPerIKE	unsignedInt	-	Indicates the maximum number of child SAs per IKE session that the device is capable of supporting.	-
MaxIKESessions	unsignedInt	-	Indicates the maximum number of IKE sessions the device is capable of supporting at any given time.	-
.FAPService.{i}.Capabilities.UMTS.	object	-	This object contains parameters relating to the system and RF aspect of the FAP device that supports the UMTS system (i.e. 3G HNB).	-
DuplexMode	string	-	Indicates the mode supported by the FAP. Enumeration of: *FDDMode* Other values are "For Future Study" (FFS).	-
GSMRxSupported	boolean	-	Indicates whether the FAP hardware supports the receiving function of GSM or not.	-
HSDPASupported	boolean	-	Indicates whether the FAP hardware supports the HSDPA capability or not.	-

Name	Type	Write	Description	Object Default
MaxHSDPADataRateSupported	unsignedInt	-	If the FAP hardware supports HSDPA (*HSDPASupported* is *true*), this parameter indicates the maximum HSDPA data rate in *Kbps* that the device supports.	-
HSUPASupported	boolean	-	Indicates whether the FAP hardware supports the HSUPA capability or not.	-
MaxHSUPADataRateSupported	unsignedInt	-	If the FAP hardware supports HSUPA (*HSUPASupported* is *true*), this parameter indicates the maximum HSUPA data rate in *Kbps* that the device supports.	-
MaxHSPDSCHsSupported	unsignedInt [:15]	-	If the FAP hardware supports HSPA family (either *HSDPASupported* is *true* or *HSUPASupported* is *true*), this parameter indicates the available number of codes at the defined spreading factor (SF=16), within the complete code tree. See 3GPP-TS.32.642 [29] Section 6.3.9 for more details.	-
MaxHSSCCHsSupported	unsignedInt	-	If the FAP hardware supports HSPA family (either *HSDPASupported* is *true* or *HSUPASupported* is *true*), this parameter indicates the available number of HS-SCCHs for one cell. See 3GPP-TS.32.642 [29] Section 6.3.9 for more details.	-
FDDBandsSupported	string (16)	-	Comma-separated list (maximum length 16) of strings. Indicates the UMTS bands that the FAP supports 3GPP-TS.25.104 [14], Release 8. At least one band MUST be supported and multiple bands MAY be supported. 3GPP-TS.25.104 [14] Version 8.3.0 defines 14 UMTS bands (I through XIV). Each individual band is identified by its upper case Roman numeral. The order of the band indicators in the string has no significance. In case a new band is defined in the 3GPP standard in a future release of 3GPP-TS.25.104 [14], the corresponding new upper case Roman numeral will be included in the valid band indicators. The followings are examples of valid values: “I” (specifies only band-I is supported) “I,II,V” (specifies 3 bands are supported) “II,VII,I” (specifies 3 bands are supported)	-

Name	Type	Write	Description	Object Default
GSMRxBandsSupported	string	-	Comma-separated list of strings. Indicates the GSM receive bands that the FAP supports 3GPP-TS.45.005 [30]. At least one band MUST be supported and multiple bands MAY be supported. 3GPP-TS.45.005 [30] defines 14 GSM bands. Each list item is an enumeration of: *T-GSM380* *T-GSM410* *GSM450* *GSM480* *GSM710* *GSM750* *T-GSM810* *GSM850* *P-GSM900* *E-GSM900* *R-GSM900* *T-GSM900* *DCS1800* *PCS1900* The order of the band indicators in the string has no significance. The following is an example of a valid value. "GSM850,PCS1900"	-
.FAPService.{i}.Capabilities.UMTS.SelfConfig.	object	-	This object contains parameters relating to the self-configuration capabilities of the FAP. Self-configuration is enabled in *.FAPControl.UMTS.SelfConfig.*	-
UARFCNConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine the UTRA Absolute Radio Frequency Channel Number (UARFCN). If *true* multiple values MAY be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.UARFCNDL* for the FAP to select from. If *false* only a single value SHOULD be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.UARFCNDL*.	-
PrimaryScramblingCodeConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine the Primary Scrambling Code (PSC). If *true* multiple values or a range of values MAY be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.PrimaryScramblingCode* for the FAP to select from. If *false* only a single value SHOULD be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.PrimaryScramblingCode*.	-

Name	Type	Write	Description	Object Default
MaxFAPTxPowerConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine the Maximum FAP Transmit Power. If *true* a range of values MAY be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.MaxFAPTxPower* for the FAP to select from. If *false* only a single value SHOULD be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.MaxFAPTxPower*.	-
PCPICHPowerConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine the P-CPICH power. If *true* a range of values MAY be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.PCPICHPower* for the FAP to select from. If *false* only a single value SHOULD be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.PCPICHPower* as an upper bound.	-
MaxULTxPowerConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine the Maximum UL Transmit Power. If *true* a range of values MAY be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.MaxULTxPower* for the FAP to select from. If *false* only a single value SHOULD be provided in *.CellConfig.UMTS.RAN.FDDFAP.RF.MaxULTxPower*.	-
LACRACURAConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine the LAC, RAC, and URA. If *true* multiple values MAY be provided in *.CellConfig.UMTS.CN.LACRAC* and *.CellConfig.UMTS.RAN.URAList* for the FAP to select from. If *false* only a single value SHOULD be provided in *.CellConfig.UMTS.CN.LACRAC* and *.CellConfig.UMTS.RAN.URAList*.	-

Name	Type	Write	Description	Object Default
NeighborListConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine the neighbor list. If *true* the ACS uses the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.IntraFreqCell.{i}.*, *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterFreqCell.{i}.*, *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.* tables to explicitly include or exclude entries and the FAP uses that information to determine the final configuration found in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.IntraFreqCell.{i}.*, *.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.InterFreqCell.{i}.*, *.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.InterRATCell.* tables. If *false* the ACS uses the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.IntraFreqCell.{i}.*, *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterFreqCell.{i}.*, *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.* tables to only specify the included entries and the FAP uses that list.	-
CellReSelectionConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine cell-reselection values. If *true* *.CellConfig.UMTS.RAN.FDDFAP.CellSelection.* can be self-configured. If *false* *.CellConfig.UMTS.RAN.FDDFAP.CellSelection.* is provided by the ACS.	-
IntraFreqMeasConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine intra-frequency measurement values. If *true* *.CellConfig.UMTS.RAN.FDDFAP.IntraFreqMeas.* can be self-configured. If *false* *.CellConfig.UMTS.RAN.FDDFAP.IntraFreqMeas.* is provided by the ACS.	-
InterFreqMeasConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine inter-frequency measurement values. If *true* *.CellConfig.UMTS.RAN.FDDFAP.InterFreqMeas.* can be self-configured. If *false* *.CellConfig.UMTS.RAN.FDDFAP.InterFreqMeas.* is provided by the ACS.	-

Name	Type	Write	Description	Object Default
InterRATMeasConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine inter-RAT measurement values. If *true* .*CellConfig.UMTS.RAN.FDDFAP.InterRATMeas.* can be self-configured. If *false* .*CellConfig.UMTS.RAN.FDDFAP.InterRATMeas.* is provided by the ACS.	-
UEInternalMeasConfig	boolean	-	Indicates whether the FAP supports the self-configuration capability to determine UE internal measurement values. If *true* .*CellConfig.UMTS.RAN.FDDFAP.UEInternalMeas.* can be self-configured. If *false* .*CellConfig.UMTS.RAN.FDDFAP.UEInternalMeas.* is provided by the ACS.	-
.FAPService.{i}.FAPControl.	object	-	This object contains parameters relating to state management and provisioning aspects of the FAP.	-
OpState	boolean	-	Current operational state of the FAP as defined in ITU-X.731 [32]. If *true* the FAP is currently enabled. If *false* the FAP is currently disabled.	-
AdminState	boolean	W	Lock or unlock the FAP. This controls the administrative state of the FAP as defined in ITU-X.731 [32]. If *true* Unlocked with permission to serve traffic (and enable RF transmitter(s)). If *false* Locked. Transition FAP to state where it is NOT permitted to serve traffic. RF transmitter is disabled. Given that this command controls the FAP's RF transmitter, the underlying expectation is that the unlock is done when all necessary conditions are met to allow the transmitter to key on and provide service, including aspects such as: location verification (including meeting the governing regulatory requirements) verifying the FAP configuration if physical tampering is supported and no physical tampering is detected. The default value after power-on is *false*.	-

Name	Type	Write	Description	Object Default
RFTxStatus	boolean	-	Current status of this RF transmitter. *true* indicates that the 3G Tx transmitter is on. *false* indicates that the 3G Tx transmitter is off. This state is tied to the Administrative state which is controlled by the ACS. When the ACS sets *AdminState* to *true*, then the FAP has permission to turn on the RF transmitter. When the ACS sets *AdminState* to *false*, then the FAP is not allowed to provide service and MUST turn off the RF transmitter.	-
SelfConfigEvents	string	W	Comma-separated list of strings. Each item is an event that causes the FAP to perform self configuration as defined by *.FAPControl.UMTS.SelfConfig*. Vendors can extend the enumerated values with vendor-specific extensions, in which case the rules outlined in TR-106a2 [4] Section3.3 MUST be adhered to. Each list item is an enumeration of: *InitialREM* (Self-configuration is initiated upon completion of Radio Environment Measurement (REM) that occurs after sending a BOOTSTRAP.)	-
EnclosureTamperingDetected	boolean	W	This parameter indicates whether or not physical tampering of the device enclosure occurred, such as illegal opening of the box. If *true* device tampering is detected. If *false* no sign of device tampering is detected. Tampering state must be persisted across reboots and the device MUST never reset it back from *true* to *false* even after a factory reset.	-
.FAPService.{i}.FAPControl.UMTS.	object	-	This object contains parameters relating to the UMTS system specific information.	-
.FAPService.{i}.FAPControl.UMTS.SelfConfig.	object	-	This object contains parameters relating to the controlling of self-configuration capabilities in the FAP.	-
UARFCNSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine the values of *.CellConfig.UMTS.RAN.CSG.UARFCNDLList*. If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
PrimaryScramblingCodeSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine the value of *.CellConfig.UMTS.RAN.FDDFAP.RF.PrimaryScramblingCode*. If *true* the FAP self-configures the value. If *false* the ACS must provide the specific value to be used.	-

Name	Type	Write	Description	Object Default
MaxFAPTxPowerSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine the value of *.CellConfig.UMTS.RAN.FDDFAP.RF.MaxFAPTxPower*. If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
PCPICHPowerSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine the value of *.CellConfig.UMTS.RAN.FDDFAP.RF.PCPICHPower*. If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
MaxULTxPowerSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine the value of *.CellConfig.UMTS.RAN.FDDFAP.RF.MaxULTxPower*. If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
LACRACURASelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine the values of {param|.CellConfig.UMTS.CN.LACRAC}} and *.CellConfig.UMTS.RAN.URAList*. If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
NeighborListSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine the values in the object *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.* If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
CellReSelectionSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine Cell Selection/Reselection-related parameters in *.CellConfig.UMTS.RAN.FDDFAP.CellSelection*. If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
IntraFreqMeasSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine intra-frequency measurement -related parameters in *.CellConfig.UMTS.RAN.FDDFAP.IntraFreqMeas.* If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-

Name	Type	Write	Description	Object Default
InterFreqMeasSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine inter-frequency measurement -related parameters in *.CellConfig.UMTS.RAN.FDDFAP.InterFreqMeas.* If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
InterRATMeasSelfConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine inter-RAT measurement -related parameters in *.CellConfig.UMTS.RAN.FDDFAP.InterRATMeas.* If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
UEInternalMeasConfigEnable	boolean	W	Indicates whether the self-configuration capability in the FAP is used or not to determine UE internal measurement-related parameters in *.CellConfig.UMTS.RAN.FDDFAP.UEInternalMeas.* If *true* The FAP self-configures the value. If *false* The ACS must provide the specific value to be used.	-
.FAPService.{i}.FAPControl.UMTS.Gateway.	object	-	This object contains parameters relating to the Gateways that FAP is connected to.	-
SecGWServer1	string (64)	W	First SecGW the FAP attempts to establish connection with. Either hostname or IPaddress.	-
SecGWServer2	string (64)	W	Second SecGW the FAP attempts to establish connection with. Either hostname or IPaddress.	-
SecGWServer3	string (64)	W	Third SecGW the FAP attempts to establish connection with. Either hostname or IPaddress.	-
FAPGWServer1	string (64)	W	First FAP-GW the FAP attempts to establish connection with. Either hostname or IPaddress.	-
FAPGWServer2	string (64)	W	Second FAP-GW the FAP attempts to establish connection with. Either hostname or IPaddress.	-
FAPGWServer3	string (64)	W	Third FAP-GW the FAP attempts to establish connection with. Either hostname or IPaddress.	-
FAPGWPort	unsignedInt [:65535]	W	Port number of FAP-GW used for initial Iuh SCTP contact.	-
.FAPService.{i}.AccessMgmt.	object	-	This object contains parameters relating to Access Management (ACL, CSG, LIA). Closed Subscriber Group (CSG) service behavior is specified in 3GPP-TS.22.011 [7]. Note: Cell barring and 3GPP access class parameters are contained in *.CellConfig.UMTS.RAN.FDDFAP.CellRestriction.*	-

Name	Type	Write	Description	Object Default
AccessMode	string	W	Indicates the type of access mode the FAP operates in. Enumeration of: *Open Access* (FAP does not enforce access control. CSG Identity is not broadcast.) *Closed Access* (FAP operates as a CSG cell.) *Hybrid Access* (FAP operates as a CSG cell where at the same time, non-CSG members (incl pre-Rel8 UE) are allowed access.) When the value is not *Open Access* non-CSG-capable UE are handled according to *NonCSGUEAccessDecision*. Note: This parameter controls the setting of the CSGindicator bit.	-
NonCSGUEAccessDecision	string	W	Indicates how the access decision is made for non-CSG-capable UE. Parameter is ignored when *AccessMode* is *Open Access*. Enumeration of: *Local* (FAP restricts access to members of ACL) *Query FAP-GW* (FAP queries FGW and acts accordingly.) *By Core* (FAP allows access. Other entity in core MAY impose restrictions.)	-
CSGMembershipDetermined Locally	boolean	W	Indicates how the access decision is made for CSG-capable UE. Parameter is ignored when *AccessMode* is *Open Access*. If *true* access decision is determined the same way as for *NonCSGUEAccessDecision*. (E.g. if core network doesn't (yet) support full CSG functionality.) If *false* FAP always allows access for CSG-capable UE. CSG enforcement is performed by MSC/SGSN (with support from HSS), or by FGW. 3GPP-TS.22.011 [7]	-
HNBIdentifier	string (48)	W	Home NodeB Identifier broadcast when FAP operates as a CSG cell and displayed by the UE. 3GPP-TS.22.011 [7]	-
HomeZoneName	string (48)	W	Home zone name. An operator-defined ASCII character string that is displayed on the UE when it is connected to the FAP. The home zone name may be used by the FAP to indicate its identity to a non-CSG capable UE. E.g. through Cell Broadcast or SMS.	-
MaxConcurrentCSGUsers	int[-1:]	W	Maximum number of concurrent CSG-capable users accessing the FAP when operating as a CSG cell. A value of -1 allows an unlimited number of CSG-capable users up to the limit of FAP capacity. The setting does not affect emergency calls. 3GPP-TS.22.011 [7]	-
CSGID	unsignedInt [:134217727]	W	Defines the Closed Subscriber Group of the Access Control List. FAP broadcasts this CSG ID in SIB3 depending on the AccessMode.	-

Name	Type	Write	Description	Object Default
AccessControlList	string (1024)	W	Comma-separated list (maximum length 1024) of strings (maximum item length 15). Each entry is an IMSI.	-
MaxMemberDetailEntries	unsignedInt	-	The maximum number of entries available in the *.AccessMgmt.MemberDetail.{i}.* table.	-
MemberDetailNumberOfEntries	unsignedInt	-	The number of entries in the *.AccessMgmt.MemberDetail.{i}.* table.	-
.FAPService.{i}.AccessMgmt.MemberDetail.{i}.	object	W	Details for CSG and Non-CSG members. At most one enabled entry in this table can exist with a given value for *IMSI*.	-
Enable	boolean	W	Enables or disables the MemberDetail entry.	false
IMSI	string (15)	W	International Mobile Subscriber Identity of the UE.	<Empty>
MSISDN	string (15)	W	Mobile Station International Subscriber Identity Number. Set to an empty string if unknown.	<Empty>
MembershipExpires	dateTime	W	Time when the ACL membership expires. An Unknown Time value, as defined in TR-106a2 [4] Section 3.2, indicates that the membership doesn't expire. Upon expiry the FAP MUST remove the IMSI from the *.AccessMgmt.AccessControlList*, but the entry in *.AccessMgmt.MemberDetail.{i}.* remains. 3GPP-TS.22.011 [7]	0001-01-01T00:00:00Z
.FAPService.{i}.AccessMgmt.LocalIPAccess.	object	-	Local IP access.	-
Enable	boolean	W	Enables/disables the Local IP Access (LIA) functionality.	-
MaxRulesEntries	unsignedInt	-	The maximum number of entries available in the *.AccessMgmt.LocalIPAccess.Rules.{i}.* table.	-
RulesNumberOfEntries	unsignedInt	-	The number of enteries in *.AccessMgmt.LocalIPAccess.Rules.{i}.* table.	-
.FAPService.{i}.AccessMgmt.LocalIPAccess.Rules.{i}.	object	W	Policy for selecting traffic for local IP access. Originated traffic will be NAT'ed. The rule is bi-directional, i.e. return traffic is allowed. Rules do NOT affect traffic to/from the FAP itself (such as TR-069 or control). The rules are applied to the mobile station data traffic (PS-domain) via deep packet inspection or similar method. At most one enabled entry in this table can exist with all the same values for *DestIPAddress*, *DestSubnetMask* and *Protocol*.	-
Enable	boolean	W	Enables or disables the forwarding entry.	false
DestIPAddress	string	W	Destination IP Address. An empty string indicates no destination address is specified. An entry for which *DestIPAddress* and *DestSubnetMask* are both an empty string is a default route.	<Empty>

Name	Type	Write	Description	Object Default
DestSubnetMask	string	W	Destination subnet mask (IPv4) or prefix (IPv6). An empty string indicates no destination subnet mask or prefix is specified. If a destination subnet mask or prefix is specified, *DestSubnetMask* is ANDed with the destination address before comparing with *DestIPAddress*. Otherwise, the full destination address is used as-is. An entry for which *DestIPAddress* and *DestSubnetMask* are both an empty string is a default route.	<Empty>
Protocol	int[-1:]	W	IP Protocol Identifier. -1 matches any protocol.	-1
Action	string	W	Action to be taken for traffic matching this rule. Enumeration of: *Tunnel* (Traffic is tunneled to FGW.) *NAPT* (Traffic is NAPT to local interface)	"Tunnel"
Interface	string (256)	W	Specifies the egress interface when *Action* is set to *NAPT*. The value MUST be the full path name of a table row. layer-3 connection object. Example: InternetGatewayDevice.LANDevice.{i}.LANEthernetInterfaceConfig.{i}.	-
.FAPService.{i}.CellConfig.	object	-	This object contains parameters relating to configuring the FAP.	-
.FAPService.{i}.CellConfig.UMTS.	object	-	This object contains parameters relating to configuring UMTS system specific information.	-
.FAPService.{i}.CellConfig.UMTS.CN.	object	-	This object contains parameters relating to configuring UMTS CN.	-
PLMNType	string	W	Type of Public Land Mobile Network (PLMN). Enumeration of: *GSM-MAP* *ANSI-41*	-
PLMNID	string (6)	W	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of *PLMNID* is 5.	-

Name	Type	Write	Description	Object Default
EquivPLMNID	string (64)	W	Comma-separated list (maximum length 64) of strings (maximum item length 6). Each item is a PLMNID. PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of the PLMNID is 5.	-
SAC	unsignedInt [0:65535]	W	Service Area Code (SAC) 3GPP-TS.23.003 [8]. The concatenation of PLMN ID (MCC+MNC), LAC, and SAC uniquely identifies the Service Area ID (SAI).	-

Name	Type	Write	Description	Object Default
LACRAC	string (256)	W	Comma-separated list (maximum length 256) of strings. Each item is a LAC/RAC combination expressed in the following format: <LAC or LACrange>':'<RAC or RACrange> Where LAC and RAC are single values, while LACrange and RACrange are inclusive and can be expressed in the following format: <Start-value>".."<End-value> Location Area Code (LAC) consists of up to 5 numerical characters. The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the Location Area ID (LAI). 3GPP-TS.23.003 [8] Section 4.1 3GPP-TS.25.413 [20] Section 9.2.3.6. Routing Area Code (RAC) consists of up to 3 numerical characters. The concatenation of PLMN ID (MCC+MNC), LAC, and RAC uniquely identifies the Routing Area ID (RAI). 3GPP-TS.23.003 [8] Section 4.2 3GPP-TS.25.413 [20] Section 9.2.3.7. The FAP is to select one LAC and RAC from the combination(s) expressed in this parameter for use in *LACInUse* and *RACInUse* respectively. If a LAC occurs more than once in the list, this shall not increase the chance that it is selected over other LAC values in the list. The following are examples of the valid LACRAC combination formats: "64000:210" (one list item with single value for LAC and RAC) "64000..64100:210, 64101:211" (two list items, first item has a LAC range) "64000:210..214, 64001:215..219" (two list items, both items have a RAC range for a specific LAC value) "64000..64100:210..214" (one list item both have a LAC range and a RAC range)	-
LACInUse	unsignedInt [:65535]	-	The LAC being used by the FAP. Self-configuration for LAC is controlled by *.Capabilities.UMTS.SelfConfig.LACRACURAConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.LACRACURASelfConfigEnable* from an enabled perspective. If the self-configuration capability is available and enabled, this parameter indicates the value selected by the FAP among the choices provided in *LACRAC*. If the self-configuration capability is not available or not enabled, then this parameter contains the first LAC value in *LACRAC*.	-

Name	Type	Write	Description	Object Default
RACInUse	unsignedInt [:255]	-	The RAC being used by the FAP. Self-configuration for RAC is controlled by *.Capabilities.UMTS.SelfConfig.LACRACURAConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.LACRACURASelfConfigEnable* from an enabled perspective. If the self-configuration capability is available and enabled, this parameter indicates the value selected by the FAP among the choices provided in *LACRAC*. If the self-configuration capability is not available or not enabled, then this parameter contains the first RAC value in *LACRAC*.	-
.FAPService.{i}.CellConfig.UMTS.CN.CSDomain.	object	-	This object contains parameters relating to configuring the CS domain of the UMTS CN.	-
T3212	unsignedInt	W	T3212 timeout value specified in *seconds*. 3GPP-TS.24.008 [13]	-
IMSIAttachDetachEnable	boolean	W	Indicates the UE behavior regarding IMSI attach/detach procedure to the CN. 3GPP-TS.24.008 [13] If *true* UE SHALL apply IMSI attach and detach procedure If *false* UE SHALL NOT apply IMSI attach and detach procedure	-
.FAPService.{i}.CellConfig.UMTS.CN.PSDomain.	object	-	This object contains parameters relating to configuring the PS domain of the UMTS CN.	-
NetworkModeOperationCombined	boolean	W	Network Mode of Operation of the CN. 3GPP-TS.23.060 [10] 3GPP-TS.24.008 [13] If *true* (Network Mode of Operation II) Combined procedures between CS and PS domain are not supported (i.e. Gs interface is not present). If *false* (Network Mode of Operation I) Combined procedures between CS and PS domain are supported (i.e. Gs interface is present).	-
.FAPService.{i}.CellConfig.UMTS.RAN.	object	-	This object contains parameters relating to the RAN-level configuration.	-
URAList	string (50)	W	Comma-separated list (maximum length 50) (range 1 to 8 items) of unsigned integers (range 0 to 65535). Each item is a URA (UTRAN Registration Area) to which the FAP belongs. The order of the URA values has no significance. 3GPP-TS.25.331 [18] Section 10.3.2.6	-

Name	Type	Write	Description	Object Default
URAInUse	unsignedInt [:65535]	-	The URA being used by the FAP. Self-configuration for URA is controlled by *.Capabilities.UMTS.SelfConfig.LACRACURAConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.LACRACURASelfConfigEnable* from an enabled perspective. If the FAP's self-configuration capability for URA is available and enabled, this parameter indicates the value selected by the FAP among the choices provided in *URAList*. If the self-configuration capability is not available or not enabled, then this parameter contains the first URA value in *URAList*.	-
RNCID	unsignedInt [0:65535]	W	RNC-ID allocated to the FAP. It uniquely identifies an RNC within a PLMN. Normally, RNC-ID consists of 12 bits (i.e. a range of [0:4095]). However, if the value is larger than 4095, then Extended RNC-ID (range of [4096:65535]) is used in RANAP. The RNC-ID and Extended RNC-ID are combined into a single parameter here as there is no explicit need to have them separated. 3GPP-TS.25.413 [20] Section 9.2.1.39	-
CellID	unsignedInt [:268435455]	W	Cell Identity. 3GPP-TS.25.331 [18] Section 10.3.2.2	-
TRatC	unsignedInt	W	Guard period in *seconds* before sending a "RANAP:RESET ACKNOWLEDGE" message towards the Femto GW. 3GPP-TS.25.413 [20] Section 9.5	-
TRafC	unsignedInt	W	Maximum amount of time in *seconds* that the FAP SHOULD wait for receiving a "RANAP:RESET ACKNOWLEDGE" message from the Femto GW after sending a Reset to the Femto GW. 3GPP-TS.25.413 [20] Section 9.5	-
NRafC	unsignedInt [0:10]	W	Maximum number for RESET procedure that can be repeated in FAP. 3GPP-TS.25.413 [20] Section 8.26.3.2	-
TigOR	unsignedInt	W	Amount of time in *seconds* used to determine when the additional level of traffic reduction in CN overload should take place. While this timer is running all OVERLOAD messages or signalling pointing to congested information received by the FAP are ignored. 3GPP-TS.25.413 [20] Section 9.5	-
TinTR	unsignedInt	W	Amount of time in *seconds* used to determine when the CN overload can be considered cleared. While this timer is running, the FAP is not allowed to increase traffic. 3GPP-TS.25.413 [20] Section 9.5	-

Name	Type	Write	Description	Object Default
TDataFwd	unsignedInt	W	Maximum amount of time in *seconds* for Data Forwarding at FAP. Timer is started when a "RANAP:SRNS Data Forward Command" message (or a "RANAP:Relocation Command" message) is received. At timer expiry the "SRNS Data Forwarding" procedure is completed. 3GPP-TS.25.413 [20] Section 9.5	-
TRelocPrep	unsignedInt	W	Maximum amount of time in *seconds* for the Relocation Preparation procedure. Timer is started when a "RANAP:Relocation Required" message is sent. Timer is stopped when a "RANAP:Relocation Command" or a "RANAP:Relocation Preparation Failure" message is received. 3GPP-TS.25.413 [20] Section 9.5	-
TRelocOverall	unsignedInt	W	Maximum amount of time in *seconds* for protection of the overall Relocation procedure. Timer is started when a "RANAP:Relocation Command" message is received. Timer is stopped when a "RANAP:Iu Release Command" is received or the relocation procedure is cancelled. 3GPP-TS.25.413 [20] Section 9.5	-
.FAPService.{i}.CellConfig.UMTS.RAN.CSG.	object	-	This object contains parameters relating to the Closed Subscriber Group (CSG).	-
CSGIndicator	boolean	-	The CSG-indicator Information Element (IE) in the Master Information Block reflects the access mode of the CSG cell. It is hence dependent on the value of *.AccessMgmt.AccessMode*. If *true* the CSG-indicator IE is present, reflecting access to the CSG cell is closed. If *false* the CSG-indicator IE is absent, reflecting access to the CSG cell is not closed. 3GPP-TS.25.331 [18] Section 10.2.48.8.1	-
UARFCNDLList	string (128)	W	Comma-separated list (maximum length 128) of unsigned integers (range 0 to 16383). Each item is a UTRA Absolute Radio Frequency Channel Number (UARFCN) in the DL direction dedicated to the CSG cells. *UARFCNDLList* is broadcast in SIB 11bis 3GPP-TS.25.331 [18] Section 10.2.48.8.14a. The corresponding UTRA Absolute Radio Frequency Channel Number (UARFCN) in the UL direction is derived based on the fixed offset applicable for the frequency band.	-
.FAPService.{i}.CellConfig.UMTS.RAN.CSG.CSGPSCSplitInfo.	object	-	This object contains parameters relating to the Primary Scrambling Code (PSC) split information for the CSG. Defined in SIB3/11bis 3GPP-TS.25.331 [18] Section 10.3.2.8 and 10.3.2.9.	-
StartPSCRange1Coefficient	unsignedInt [0:63]	W	The value of this Information Element (IE) multiplied by 8 specifies the start PSC value of the first PSC range as specified in 3GPP-TS.25.331 [18] Section 8.6.2.4.	-

Name	Type	Write	Description	Object Default
NumberOfPSCs	string	W	This Information Element (IE) specifies the number of PSCs reserved for CSG cells in each PSC range. Enumeration of: *5* *10* *15* *20* *30* *40* *50* *64* *80* *120* *160* *256* *alltherest* *spare3* *spare2* *spare1*	-
PSCRange2Offset	unsignedInt [0:63]	W	If this Information Element (IE) is included, the UE shall calculate the second PSC range as specified in 3GPP-TS.25.331 [18] Section 8.6.2.4. If this Information Element (IE) is not included, the UE shall consider the second PSC range to be not present.	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.	object	-	This object contains parameters relating to the cell-level configuration for FDD mode FAP.	-
HSFlag	boolean	W	Enables/disables the HSDPA function in the FAP. If *true* HSDPA is enabled (this is equivalent to a "1" in 3GPP-TS.32.642 [29] Section 6.3.9) If *false* HSDPA is disabled (this is equivalent to a "0" in 3GPP-TS.32.642 [29] Section 6.3.9)	-
HSEnable	boolean	W	Enables or disables HSDPA in the cell. If *true* HSDPA is enabled (this is equivalent to a "1" in 3GPP-TS.32.642 [29] Section 6.3.9) If *false* HSDPA is not enabled (this is equivalent to a "0" in 3GPP-TS.32.642 [29] Section 6.3.9) If *HSFlag* is *false* then this value MUST be *false*.	-
NumOfHSPDSCHs	unsignedInt [0:15]	W	The number of codes at the defined spreading factor (SF=16), within the complete code tree. 3GPP-TS.32.642 [29] Section 6.3.9	-
NumOfHSSCCHs	unsignedInt	W	The number of HS-SCCHs for one cell. 3GPP-TS.32.642 [29] Section 6.3.9	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.CellSelection.	object	-	This object contains parameters related to cell selection and reselection.	-

Name	Type	Write	Description	Object Default
QualityMeasureCPICH	string	W	Which mechanism to use when doing CPICH quality measurements. 3GPP-TS.25.331 [18] Section 10.3.7.47 Enumeration of: *Ec/No* *RSCP*	-
QqualMin	int[-24:0]	W	Minimum required quality measure, specified in *dB*. 3GPP-TS.25.331 [18] Section 10.3.2.3 and Section 10.3.2.4 This value is only meaningful if *QualityMeasureCPICH* has the value *Ec/No* and it MUST otherwise be ignored.	-
QqualMinOffset	unsignedInt [1:16]	W	Offset for *QqualMin* specified in *dB*. 3GPP-TS.25.331 [18] Section 10.3.2.3 This value is only meaningful if *QualityMeasureCPICH* has the value *Ec/No* and it MUST otherwise be ignored.	-
QRxLevMin	int[-115:-25]	W	Minimum required RX level in the cell, specified in *dBm*. 3GPP-TS.25.331 [18] Section 10.3.2.3 Only odd values are valid, use of an even value MUST be rejected by the CPE. This value is only meaningful if *QualityMeasureCPICH* has the value *RSCP* and it MUST otherwise be ignored.	-
DeltaQRxLevMin	int[-4, -2]	W	Delta for the minimum required RX level in the cell, specified in *dB*. 3GPP-TS.25.331 [18] Section 10.3.2.3 and Section 10.3.2.4 The actual value of *QRxLevMin* = *QRxLevMin* + *DeltaQRxLevMin* This value is only meaningful if *QualityMeasureCPICH* has the value *RSCP* and it MUST otherwise be ignored.	-
QRxLevMinOffset	unsignedInt [2, 4, 6, 8, 10, 12, 14, 16]	W	Offset for *QRxLevMin*, specified in *dB*. 3GPP-TS.25.331 [18] Section 10.3.2.3 This value is only meaningful if *QualityMeasureCPICH* has the value *RSCP* and it MUST otherwise be ignored.	-
QHyst1s	unsignedInt [0:40]	W	GSM and FDD Cell reselection hysteresis 1. 3GPP-TS.25.331 [18] Section 10.3.2.3 Only even values are valid, use of an odd value MUST be rejected by the CPE. This value is only meaningful if *QualityMeasureCPICH* has the value *RSCP* and it MUST otherwise be ignored.	-

Name	Type	Write	Description	Object Default
QHyst2s	unsignedInt [0:40]	W	FDD Cell reselection hysteresis 2. 3GPP-TS.25.331 [18] Section 10.3.2.3 Only even values are valid, use of an odd value MUST be rejected by the CPE. This value is only meaningful if *QualityMeasureCPICH* has the value *RSCP* and it MUST otherwise be ignored. By default when *QHyst1s* is set and *QHyst2s* is not, then the value for *QHyst2s* should match the value of *QHyst1s*.	-
TReselections	unsignedInt [0:31]	W	A member of the set of parameters used for cell reselection functionality. A UE triggers the reselection of a new cell if the cell reselection criteria are fulfilled during the time interval in *seconds*. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3.	-
SIntrasearch	int[-32:20]	W	A member of the set of parameters used for cell reselection functionality. Defines the threshold for intra-frequency measurements, and for the HCS measurement rules. Only even values are valid, use of an odd value MUST be rejected by the CPE. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3.	-
SIntersearch	int[-32:20]	W	A member of the set of parameters used for cell reselection functionality. Defines the threshold for inter-frequency measurements, and for the HCS measurement rules. Only even values are valid, use of an odd value MUST be rejected by the CPE. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3.	-
SSearchHCS	int[-105:91]	W	A member of the set of parameters used for cell reselection functionality. Defines the threshold for intrafrequency and interfrequency measurement rules in HCS. Below this limit in the serving cell, the UE initiates measurements of all intrafrequency and interfrequency neighbouring cells of the serving cell. Only odd values are valid, use of an even value MUST be rejected by the CPE. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3.	-
SSearchRAT	int[-32:20]	W	A member of the set of parameters used for cell reselection functionality. Defines the RAT (GSM) specific threshold for inter-RAT measurement rules. Only even values are valid, use of an odd value MUST be rejected by the CPE. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3.	-

Name	Type	Write	Description	Object Default
SHCSRAT	int[-105:91]	W	A member of the set of parameters used for cell reselection functionality. Defines the RAT (GSM) specific threshold for inter-RAT measurement rules in HCS. Only odd values are valid, use of an even value MUST be rejected by the CPE. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3.	-
SLimitSearchRAT	int[-32:20]	W	A member of the set of parameters used for cell reselection functionality. Defines the threshold for skipping inter-RAT measurement rules in HCS. Above this RAT (GSM) specific threshold in the serving UTRA cell, the UE does not need to perform any inter-RAT measurements. Only even values are valid, use of an odd value MUST be rejected by the CPE. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3.	-
NonHCSTCRMax	string	W	A member of the set of parameters used for cell reselection functionality. Defines the duration in seconds for evaluating the allowed amount of cell reselections. If the number of cell reselections during the time period defined by *NonHCSTCRMax* exceeds *NonHCSNCR*, high mobility has been detected. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3. Enumeration of: *not used* *30* *60* *120* *180* *240*	-
NonHCSNCR	unsignedInt[1:16]	W	A member of the set of parameters used for cell reselection functionality. Defines the maximum number of cell reselections. If the number of cell reselections during the *NonHCSTCRMax* time period exceeds the value of *NonHCSNCR*, high mobility has been detected. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3.	-

Name	Type	Write	Description	Object Default
NonHCSTCRMaxHyst	string	W	A member of the set of parameters used for cell reselection functionality. Defines the cell reselection hysteresis for reverting from UE high-mobility measurements. The additional time period in seconds before UE reverts to low-mobility measurements. When the number of cell reselections during the time period defined by *TCRMax* no longer exceeds *NCR*, UE continues measurements during the time period defined by *TCRMaxHyst*. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.2.3. Enumeration of: *not used* *10* *20* *30* *40* *50* *60* *70*	-
QHCS	unsignedInt [0:99]	W	A member of the set of parameters used for cell reselection functionality. Defines the quality threshold levels for applying prioritised hierarchical cell reselection. 3GPP-TS.25.331 [18] Section 10.3.7.12 and Section 10.3.7.54a	-
UseOfHCS	boolean	W	A member of the set of parameters used for cell reselection functionality. Indicate whether HCS is used in this cell or not. 3GPP-TS.25.331 [18] Section 10.3.7.47	-
HCSPrio	unsignedInt [0:7]	W	A member of the set of parameters used for cell reselection functionality. Defines the HCS priority of this cell. 3GPP-TS.25.331 [18] Section 10.3.7.12	-
TCRMax	string	W	A member of the set of parameters used for cell reselection functionality. Defines the duration in seconds for evaluating the allowed amount of cell reselections. If the number of cell reselections during the time period defined by *TCRMax* exceeds *NCR*, high mobility has been detected. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.7.12. Enumeration of: *not used* *30* *60* *120* *180* *240*	-

Name	Type	Write	Description	Object Default
NCR	unsignedInt [1:16]	W	A member of the set of parameters used for cell reselection functionality. Defines the maximum number of cell reselections. If the number of cell reselections during the *TCRMax* time period exceeds the value of *NCR*, high mobility has been detected. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.7.12.	-
TCRMaxHyst	string	W	A member of the set of parameters used for cell reselection functionality. Defines the cell reselection hysteresis for reverting from UE high-mobility measurements. The additional time period in seconds before UE reverts to low-mobility measurements. When the number of cell reselections during the time period defined by *TCRMax* no longer exceeds *NCR*, UE continues measurements during the time period defined by *TCRMaxHyst*. Parameter defined in SIB3 3GPP-TS.25.331 [18] Section 10.3.7.12. Enumeration of: *not used* *10* *20* *30* *40* *50* *60* *70*	-
UETxPwrMaxRACH	int[-50:33]	W	A member of the set of parameters used for cell reselection functionality. Defines the maximum transmit power level, specified in *dBm*, that an UE may use when accessing the cell on RACH. Used to calculate Pcompensation, which is: max(UE_TXPWR_MAX_RACH – P_MAX, 0), where UE_TXPWR_MAX_RACH is *UETxPwrMaxRACH* and P_MAX is the max transmit power for a UE. 3GPP-TS.25.331 [18] Section 10.3.2.3, 3GPP-TS.25.304 [17] Section 5.2.3	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.RRCTimers.	object	-	This object contains parameters related to miscellaneous RRC timers and constants.	-
T300	unsignedInt [100:8000]	W	Timer measured in *milliseconds*. Only the following values are considered valid: 100, 200, 400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 3000, 4000, 6000, and 8000 Any value other than those and the CPE MUST reject the request. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-

Name	Type	Write	Description	Object Default
T301	unsignedInt [100:8000]	W	Timer measured in *milliseconds*. Only the following values are considered valid: 100, 200, 400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 3000, 4000, 6000, and 8000 Any value other than those and the CPE MUST reject the request. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T302	unsignedInt [100:8000]	W	Timer measured in *milliseconds*. Only the following values are considered valid: 100, 200, 400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 3000, 4000, 6000, and 8000 Any value other than those and the CPE MUST reject the request. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T304	unsignedInt [100, 200, 400, 1000, 2000]	W	Timer measured in *milliseconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T305	int[-1, 5, 10, 30, 60, 120, 360, 720]	W	Timer measured in *minutes*. -1 indicates an unbounded timer in which there is no update. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T307	unsignedInt [5, 10, 15, 20, 30, 40, 50]	W	Timer measured in *seconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T308	unsignedInt [40, 80, 160, 320]	W	Timer measured in *milliseconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T309	unsignedInt [1:8]	W	Timer measured in *seconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T310	unsignedInt [40, 80, 120, 160, 200, 240, 280, 320]	W	Timer measured in *milliseconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T311	unsignedInt [250, 500, 750, 1000, 1250, 1500, 1750, 2000]	W	Timer measured in *milliseconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T312	unsignedInt [0:15]	W	Timer measured in *seconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T313	unsignedInt [0:15]	W	Timer measured in *seconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-

Name	Type	Write	Description	Object Default
T314	unsignedInt [0, 2, 4, 6, 8, 12, 16, 20]	W	Timer measured in *seconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T315	unsignedInt [0, 10, 30, 60, 180, 600, 1200, 1800]	W	Timer measured in *seconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
T316	int[-1, 0, 10, 20, 30, 40, 50]	W	Timer measured in *seconds*. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43. -1 indicates an unbounded timer in which there is no update.	-
T317	unsignedInt [0, 10, 30, 60, 180, 600, 1200, 1800]	W	Timer measured in . Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
N300	unsignedInt [0:7]	W	Counter. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
N301	unsignedInt [0:7]	W	Counter. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
N302	unsignedInt [0:7]	W	Counter. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
N304	unsignedInt [0:7]	W	Counter. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
N310	unsignedInt [0:7]	W	Counter. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
N312	unsignedInt [1:1000]	W	Counter. Only the following values are considered valid: 1, 2, 4, 10, 20, 50, 100, 200, 400, 600, 800, and 1000. Any value other than those and the CPE MUST reject the request. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
N313	unsignedInt [1, 2, 4, 10, 20, 50, 100, 200]	W	Counter. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-
N315	unsignedInt [1:1000]	W	Counter. Only the following values are considered valid: 1, 2, 4, 10, 20, 50, 100, 200, 400, 600, 800, and 1000. Any value other than those and the CPE MUST reject the request. Defined in SIB1 3GPP-TS.25.331 [18] Section 13.1 and Section 10.3.3.43.	-

Name	Type	Write	Description	Object Default
WaitTime	unsignedInt [0:15]	W	Time period defined in *seconds* that the UE has to wait before repeating the rejected procedure. This is an IE used when sending RRC connection reject, redirecting the requesting UE to another frequency. 0 indicates that repetition is not allowed. 3GPP-TS.25.331 [18] Section 10.3.3.50.	-
.FAPService.{i}.CellConfig. UMTS.RAN.FDDFAP.DRX.	object	-	This object contains parameters related to DRX parameters.	-
DRXCycleLengthCoefficient CS	unsignedInt [6:9]	W	Defines the DRX cycle length coefficient for CS domain to optimize paging in idle mode. Defined in SIB1 3GPP-TS.25.331 [18] Section 10.3.3.6. *DRXCycleLengthCoefficientCS* refers to 'k' in the formula as specified in 3GPP-TS.25.304 [17], Discontinuous reception. Used by the CN CS domain to count paging occasions for discontinuous reception in Idle Mode. The duration of the DRX cycle is 2 <power> k frames, where 'k' is the used DRX cycle length coefficient for CN.	-
DRXCycleLengthCoefficient PS	unsignedInt [6:9]	W	Defines the DRX cycle length coefficient for PS domain to optimize paging in idle mode. Defined in SIB1 3GPP-TS.25.331 [18] Section 10.3.3.6. *DRXCycleLengthCoefficientPS* refers to 'k' in the formula as specified in 3GPP-TS.25.304 [17], Discontinuous reception. Used by the CN PS domain to count paging occasions for discontinuous reception in Idle Mode. The duration of the DRX cycle is 2 <power> k frames, where 'k' is the used DRX cycle length coefficient for CN.	-
UTRANDRXCycleLengthCo efficient	unsignedInt [3:9]	W	Defines the DRX cycle length used by UTRAN to count paging occasions for discontinuous reception in Connected Mode. The duration of the DRX cycle is 2 <power> k frames, where 'k' is the used DRX cycle length coefficient for UTRAN. *UTRANDRXCycleLengthCoefficient* SHOULD be used by the UTRAN/FAP for UEs in Cell_PCH/Cell_FACH state. 3GPP-TS.25.331 [18] Section 10.3.3.49	-
.FAPService.{i}.CellConfig. UMTS.RAN.FDDFAP. PowerControl.	object	-	This object contains parameters related to power control and RACH.	-
ConstantValue	int[-35:-10]	W	Used by the UE to calculate the initial output power, specified in *dB*, on PRACH according to the open loop power control procedure. Parameter in SIB5. 3GPP-TS.25.331 [18] Section 10.3.6.11	-

Name	Type	Write	Description	Object Default
PowerRampSetup	unsignedInt [1:8]	W	Used for the Uplink Common Channel. Defines the Power ramp setup, specified in *dB*, on PRACH preamble when no acquisition indicator (AI) is detected by the UE. Parameter in SIB5. 3GPP-TS.25.331 [18] Section 10.3.6.54	-
PreambleRetransMax	unsignedInt [1:64]	W	Used for the Uplink Common Channel. Defines the maximum number of preambles allowed in one preamble ramping cycle. PRACH Preamble Retrans Max is part of "PRACH power offset" which is part of "PRACH system information list". Parameter in SIB5. 3GPP-TS.25.331 [18] Section 10.3.6.54	-
PersistenceScaleFactor	unsignedInt [2:9]	W	Persistence Scaling Factor for overload control. Parameter in SIB5. The value is the scaling factor multiplied by 10, e.g. 2 is a scaling factor of 0.2	-
MMax	unsignedInt [1:32]	W	Maximum number of RACH preamble cycles. Defines how many times the PRACH preamble ramping procedure can be repeated before UE MAC reports a failure on RACH transmission to higher layers. Maximum number of RACH preamble cycles is part of "RACH transmission parameters" which is part of "PRACH system information list" which is part of SIB5. 3GPP-TS.25.331 [18] Section 10.3.6.67	-
NB01Min	unsignedInt [0:50]	W	RACH random back-off lower bound. *NB01Min* is the lower bound of the waiting time in 10 millisecond increments (i.e. 1 corresponds to 10 ms and 50 corresponds to 500 ms). *NB01Min* is part of "RACH transmission parameters" which is part of "PRACH system information list" which is part of SIB5. 3GPP-TS.25.331 [18] Section 10.3.6.67	-
NB01Max	unsignedInt [0:50]	W	RACH random back-off upper bound. *NB01Max* is the Upper bound of the waiting time in 10 millisecond increments (i.e. 1 corresponds to 10 ms and 50 corresponds to 500 ms). *NB01Max* is part of "RACH transmission parameters" which is part of "PRACH system information list" which is part of SIB5. 3GPP-TS.25.331 [18] Section 10.3.6.67	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.CellRestriction.	object	-	This object contains parameters related to cell access restriction.	-

Name	Type	Write	Description	Object Default
CellBarred	boolean	W	Indicates whether the FAP is barred from service or not. 3GPP-TS.25.331 [18] Section 10.3.2	-
IntraFreqCellReselectionIndicator	boolean	W	When *CellBarred* is *true*, this indicates whether the intra-frequency cell re-selection is allowed or not. *IntraFreqCellReselectionIndicator* has no meaning if *CellBarred* is *false* and MUST be ignored in such cases. *true* means that intra-frequency cell re-selection is allowed. *false* means that intra-frequency cell re-selection is not allowed. 3GPP-TS.25.331 [18] Section 10.3.2	-
TBarred	unsignedInt [10, 20, 40, 80, 160, 320, 640, 1280]	W	The time period in *seconds* during which the UE is barred from accessing the FAP. 3GPP-TS.25.331 [18] Section 10.3.2	-
AccessClassBarredListCS	string	W	Comma-separated list of unsigned integers (range 0 to 15). Each entry is an Access Class that is barred from CS service. The order of the list has no significance. 3GPP-TS.25.331 [18] Section 10.3.2	-
AccessClassBarredListPS	string	W	Comma-separated list of unsigned integers (range 0 to 15). Each entry is an Access Class that is barred from PS service. The order of the list has no significance. 3GPP-TS.25.331 [18] Section 10.3.2	-
CellReservedForOperatorUse	boolean	W	Indicates whether the FAP is reserved for operator use or not. 3GPP-TS.25.331 [18] Section 10.3.2	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.IntraFreqMeas.	object	-	This object contains parameters relating to the intra-freq HO control parameters.	-
MeasurementQuantity	string	W	Defines the measurement quantity for intra-freq HO measurement when the UE is in Cell-DCH state. Enumeration of: *CPICH Ec/No* *CPICH RSCP* *Pathloss* 3GPP-TS.25.331 [18] Section 10.3.7.38	-
FilterCoefficient	unsignedInt [0:9, 11, 13, 15, 17, 19]	W	Defines the equivalent time constant of the low pass filter applied to the CPICH quality measurements, or *CPICH Ec/No*. 3GPP-TS.25.331 [18] Section 8.6.7.2 and Section 10.3.7.9	-

Name	Type	Write	Description	Object Default
IntraFrequencyEventIdentity	string (32)	W	Comma-separated list (maximum length 32) of strings. Each entry is an Event ID from the list of: 1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h, 1i Defines the identity of the event used to trigger UE reporting (in case of event-triggered reporting). 3GPP-TS.25.331 [18] Section 10.3.7.34 Since the FAP can determine this on its own, it might not be necessary to configure it.	-
TriggeringCondition2Event1a	string	W	Comma-separated list of strings. Indicates which cells can trigger Event 1a. Each list item is an enumeration of: *Active* *Monitored* *Active and Monitored* *Detected* *Detected and Monitored* 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
TriggeringCondition1Event1b	string	W	Comma-separated list of strings. Indicates which cells can trigger Event 1b. Each list item is an enumeration of: *Active* *Monitored* *Active and Monitored* 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
TriggeringCondition2Event1e	string	W	Comma-separated list of strings. Indicates which cells can trigger Event 1e. Each list item is an enumeration of: *Active* *Monitored* *Active and Monitored* *Detected* *Detected and Monitored* 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
TriggeringCondition1Event1f	string	W	Comma-separated list of strings. Indicates which cells can trigger Event 1f. Each list item is an enumeration of: *Active* *Monitored* *Active and Monitored* 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-

Name	Type	Write	Description	Object Default
ReportingRangeEvent1a	unsignedInt [0:29]	W	Defines a constant in the inequality criterion that needs to be satisfied for an Event 1a to occur. Actual values of the range are 0.0 to 14.5 *dB* in steps of 0.5 *dB*. The value of *ReportingRangeEvent1a* divided by 2 yields the actual value of the range. 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
ReportingRangeEvent1b	unsignedInt [0:29]	W	Defines a constant in the inequality criterion that needs to be satisfied for an Event 1b to occur. Actual values of the range are 0.0 to 14.5 *dB* in steps of 0.5 *dB*. The value of *ReportingRangeEvent1b* divided by 2 yields the actual value of the range. 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
WeightingFactorEvent1a	unsignedInt [0:20]	W	Defines the weighting factor for intra-freq HO measurement when the UE is in Cell-DCH state. Actual values of the weighting factor are 0.0 to 2.0 in steps of 0.1. The value of *WeightingFactorEvent1a* divided by 10 yields the actual value of the weighting factor. 3GPP-TS.25.331 [18] Section 10.3.7.39	-
WeightingFactorEvent1b	unsignedInt [0:20]	W	Defines the weighting factor for intra-freq HO measurement when the UE is in Cell-DCH state. Actual values of the weighting factor are 0.0 to 2.0 in steps of 0.1. The value of *WeightingFactorEvent1b* divided by 10 yields the actual value of the weighting factor. 3GPP-TS.25.331 [18] Section 10.3.7.39	-
ReportDeactivationThreshold Event1a	unsignedInt [0:7]	W	Defines the maximum number of cells allowed in the "active cell set" for Event 1a to occur. 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
ReportingAmountEvent1a	int[-1, 1:2, 4, 8, 16, 32, 64]	W	Defines the maximum number of MEASUREMENT REPORT messages sent by the UE in case of periodic reporting triggered by an Event 1a The value -1 is used to represent an unbounded maximum. 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
ReportingAmountEvent1c	int[-1, 1:2, 4, 8, 16, 32, 64]	W	Defines the maximum number of MEASUREMENT REPORT messages sent by the UE in case of periodic reporting triggered by an Event 1c The value -1 is used to represent an unbounded maximum. 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
ReportingIntervalEvent1a	unsignedInt [0, 250, 500, 1000, 2000, 4000, 8000, 16000]	W	Defines the transmission period in *milliseconds* of MEASUREMENT REPORT messages sent by the UE in case of periodic reporting triggered by an Event 1a. 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-

Name	Type	Write	Description	Object Default
ReportingIntervalEvent1c	unsignedInt [0, 250, 500, 1000, 2000, 4000, 8000, 16000]	W	Defines the transmission period in *milliseconds* of MEASUREMENT REPORT messages sent by the UE in case of periodic reporting triggered by an Event 1c. 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
HysteresisEvent1a	unsignedInt [0:15]	W	Defines the hysteresis for intra-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 7.5 in steps of 0.5. The value of *HysteresisEvent1a* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 14.1.2	-
HysteresisEvent1b	unsignedInt [0:15]	W	Defines the hysteresis for intra-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 7.5 in steps of 0.5. The value of *HysteresisEvent1b* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 14.1.2	-
HysteresisEvent1c	unsignedInt [0:15]	W	Defines the hysteresis for intra-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 7.5 in steps of 0.5. The value of *HysteresisEvent1c* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 14.1.2	-
HysteresisEvent1e	unsignedInt [0:15]	W	Defines the hysteresis for intra-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 7.5 in steps of 0.5. The value of *HysteresisEvent1e* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 14.1.2	-
HysteresisEvent1f	unsignedInt [0:15]	W	Defines the hysteresis for intra-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 7.5 in steps of 0.5. The value of *HysteresisEvent1f* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 14.1.2	-
TimeToTriggerEvent1a	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for intra-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 10.3.7.64	-

Name	Type	Write	Description	Object Default
TimeToTriggerEvent1b	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for intra-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 10.3.7.64	-
TimeToTriggerEvent1c	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for intra-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 10.3.7.64	-
TimeToTriggerEvent1e	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for intra-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 10.3.7.64	-
TimeToTriggerEvent1f	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for intra-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.39 and Section 10.3.7.64	-

Name	Type	Write	Description	Object Default
ThresholdUsedFrequencyEvent1e	int[-120:165]	W	Defines the reporting threshold for intra-freq HO measurement when the UE is in Cell-DCH state. This is the "Threshold used frequency" as defined in 3GPP-TS.25.331 [18] Section 10.3.7.39. Each valid value of *MeasurementQuantity* has a different valid range. *CPICH RSCP* has a range of -120 dBm to -25 dBm *CPICH Ec/No* has a range of -24 dB to 0 dB *Pathloss* has a range of 30 dB to 165 dB	-
ThresholdUsedFrequencyEvent1f	int[-120:165]	W	Defines the reporting threshold for intra-freq HO measurement when the UE is in Cell-DCH state. This is the "Threshold used frequency" as defined in 3GPP-TS.25.331 [18] Section 10.3.7.39. Each valid value of *MeasurementQuantity* has a different valid range. *CPICH RSCP* has a range of -120 dBm to -25 dBm *CPICH Ec/No* has a range of -24 dB to 0 dB *Pathloss* has a range of 30 dB to 165 dB	-
ReplacementActivationThresholdEvent1c	unsignedInt[0:7]	W	Defines the minimum number of cells allowed in the "active cell set" for Event 1c to occur. 3GPP-TS.25.331 [18] Section 14.1.2 and Section 10.3.7.39	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.InterFreqMeas.	object	-	This object contains parameters relating to the inter-freq HO related control parameters.	-
MeasurementQuantity	string	W	Defines the measurement quantity for inter-freq HO measurement when the UE is in Cell-DCH state. Enumeration of: *CPICH Ec/No* *CPICH RSCP* 3GPP-TS.25.331 [18] Section 10.3.7.18	-
FilterCoefficient	unsignedInt[0:9, 11, 13, 15, 17, 19]	W	Defines the filter coefficient for inter-freq HO measurement when the UE is in Cell-DCH state. 3GPP-TS.25.331 [18] Section 10.3.7.9 and Section 10.3.7.18	-
InterFrequencyEventIdentity	string (32)	W	Comma-separated list (maximum length 32) of strings. Each entry is an Event ID from the list of: 2a, 2b, 2c, 2d, 2e,2f Defines the identity of the event used to trigger inter-frequency UE reporting (in case of event-triggered reporting). 3GPP-TS.25.331 [18] Section 10.3.7.14	-

Name	Type	Write	Description	Object Default
WeightingFactorEvent2a	unsignedInt [0:20]	W	Defines the weighting factor for inter-freq HO measurement when the UE is in Cell-DCH state. Actual values of the weighting factor are 0.0 to 2.0 in steps of 0.1. The value of *WeightingFactorEvent2a* divided by 10 yields the actual value of the weighting factor. 3GPP-TS.25.331 [18] Section 10.3.7.19	-
WeightingFactorEvent2b	unsignedInt [0:20]	W	Defines the weighting factor for inter-freq HO measurement when the UE is in Cell-DCH state. Actual values of the weighting factor are 0.0 to 2.0 in steps of 0.1. The value of *WeightingFactorEvent2b* divided by 10 yields the actual value of the weighting factor. 3GPP-TS.25.331 [18] Section 10.3.7.19	-
WeightingFactorEvent2d	unsignedInt [0:20]	W	Defines the weighting factor for inter-freq HO measurement when the UE is in Cell-DCH state. Actual values of the weighting factor are 0.0 to 2.0 in steps of 0.1. The value of *WeightingFactorEvent2d* divided by 10 yields the actual value of the weighting factor. 3GPP-TS.25.331 [18] Section 10.3.7.19	-
WeightingFactorEvent2f	unsignedInt [0:20]	W	Defines the weighting factor for inter-freq HO measurement when the UE is in Cell-DCH state. Actual values of the weighting factor are 0.0 to 2.0 in steps of 0.1. The value of *WeightingFactorEvent2f* divided by 10 yields the actual value of the weighting factor. 3GPP-TS.25.331 [18] Section 10.3.7.19	-
HysteresisEvent2a	unsignedInt [0:29]	W	Defines the hysteresis for inter-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 14.5 in steps of 0.5. The value of *HysteresisEvent2a* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.19	-
HysteresisEvent2b	unsignedInt [0:29]	W	Defines the hysteresis for inter-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 14.5 in steps of 0.5. The value of *HysteresisEvent2b* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.19	-
HysteresisEvent2d	unsignedInt [0:29]	W	Defines the hysteresis for inter-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 14.5 in steps of 0.5. The value of *HysteresisEvent2d* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.19	-
HysteresisEvent2f	unsignedInt [0:29]	W	Defines the hysteresis for inter-freq HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 14.5 in steps of 0.5. The value of *HysteresisEvent2f* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.19	-

Name	Type	Write	Description	Object Default
TimeToTriggerEvent2a	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for inter-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.19 and Section 10.3.7.64	-
TimeToTriggerEvent2b	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for inter-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.19 and Section 10.3.7.64	-
TimeToTriggerEvent2d	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for inter-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.19 and Section 10.3.7.64	-
TimeToTriggerEvent2f	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for inter-freq HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.19 and Section 10.3.7.64	-
ThresholdUsedFrequencyEvent2b	int[-120:0]	W	Defines the reporting threshold for inter-freq HO measurement when the UE is in Cell-DCH state. This is the "Threshold used frequency" as defined in 3GPP-TS.25.331 [18] Section 10.3.7.19. Each valid value of *MeasurementQuantity* has a different valid range. *CPICH RSCP* has a range of -120 dBm to -25 dBm *CPICH Ec/No* has a range of -24 dB to 0 dB	-

Name	Type	Write	Description	Object Default
ThresholdUsedFrequencyEvent2d	int[-120:0]	W	Defines the reporting threshold for inter-freq HO measurement when the UE is in Cell-DCH state. This is the "Threshold used frequency" as defined in 3GPP-TS.25.331 [18] Section 10.3.7.19. Each valid value of *MeasurementQuantity* has a different valid range. *CPICH RSCP* has a range of -120 dBm to -25 dBm *CPICH Ec/No* has a range of -24 dB to 0 dB	-
ThresholdUsedFrequencyEvent2f	int[-120:0]	W	Defines the reporting threshold for inter-freq HO measurement when the UE is in Cell-DCH state. This is the "Threshold used frequency" as defined in 3GPP-TS.25.331 [18] Section 10.3.7.19. Each valid value of *MeasurementQuantity* has a different valid range. *CPICH RSCP* has a range of -120 dBm to -25 dBm *CPICH Ec/No* has a range of -24 dB to 0 dB	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.InterRATMeas.	object	-	This object contains parameters relating to the inter-RAT HO related control parameters. This is specifically for GERAN system.	-
GSMFilterCoefficient	unsignedInt [0:9, 11, 13, 15, 17, 19]	W	Defines the filter coefficient for inter-RAT HO measurement when the UE is in Cell-DCH state. 3GPP-TS.25.331 [18] Section 10.3.7.9 and Section 10.3.7.29	-
BSICVerificationRequired	boolean	W	Indicates whether the BSIC verification is required or not for inter-RAT HO measurement when the UE is in Cell-DCH state. 3GPP-TS.25.331 [18] Section 10.3.7.29	-
WeightingFactor	unsignedInt [0:20]	W	Defines the weighting factor for inter-RAT HO measurement when the UE is in Cell-DCH state. Actual values of the weighting factor are 0.0 to 2.0 in steps of 0.1. The value of *WeightingFactor* divided by 10 yields the actual value of the weighting factor. 3GPP-TS.25.331 [18] Section 10.3.7.30	-
Hysteresis	unsignedInt [0:15]	W	Defines the hysteresis for inter-RAT HO measurement when the UE is in Cell-DCH state. Actual values of the range are 0.0 to 7.5 in steps of 0.5. The value of *Hysteresis* divided by 2 yields the actual value of the hysteresis. 3GPP-TS.25.331 [18] Section 10.3.7.30	-
TimeToTrigger	unsignedInt [0:5000]	W	Defines the time-to-trigger in *milliseconds* for inter-RAT HO measurement when the UE is in Cell-DCH state. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.30 and Section 10.3.7.64	-

Name	Type	Write	Description	Object Default
ThresholdOwnSystem	int[-115:0]	W	Defines the reporting threshold for inter-RAT HO measurement when the UE is in Cell-DCH state. This is the "Threshold own system" as defined in 3GPP-TS.25.331 [18] Section 10.3.7.30.	-
ThresholdOtherSystem	int[-115:0]	W	Defines the reporting threshold for inter-RAT HO measurement when the UE is in Cell-DCH state. This is the "Threshold other system" as defined in 3GPP-TS.25.331 [18] Section 10.3.7.30.	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.UEInternalMeas.	object	-	This object contains parameters relating to the UE internal measurement control parameters.	-
FilterCoefficient	unsignedInt [0:9, 11, 13, 15, 17, 19]	W	Defines the filter coefficient for UE internal measurement. 3GPP-TS.25.331 [18] Section 10.3.7.9 and Section 10.3.7.79	-
UETxPwrThresholdEvent6a	int[-50:33]	W	Defines the threshold for UE transmit power above which Event 6a is reported. 3GPP-TS.25.331 [18] Section 10.3.7.80	-
TimeToTriggerEvent6a	unsignedInt [0:5000]	W	Defines the period in *milliseconds* between detection of Event 6a and sending of Measurement Report. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.80	-
UETxPwrThresholdEvent6b	int[-50:33]	W	Defines the threshold for UE transmit power above which Event 6b is reported. 3GPP-TS.25.331 [18] Section 10.3.7.80	-
TimeToTriggerEvent6b	unsignedInt [0:5000]	W	Defines the period in *milliseconds* between detection of Event 6b and sending of Measurement Report. Only the following values are considered valid: 0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000 Any value other than those and the CPE MUST reject the request. 3GPP-TS.25.331 [18] Section 10.3.7.80	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.RF.	object	-	This object contains parameters relating to the RF configuration.	-

Name	Type	Write	Description	Object Default
UARFCNDL	string (64)	W	Comma-separated list (maximum length 64) (minimum 1 items) of strings. Each item is a DL UTRA Absolute Radio Frequency Channel Number (UARFCN) in an FDD mode cell. 3GPP-TS.25.433 [21] Section 9.2.1.65 Self-configuration for UARFCN is controlled by *.Capabilities.UMTS.SelfConfig.UARFCNConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.UARFCNSelfConfigEnable* from an enabled perspective. If the FAP's self-configuration capability for UARFCN is available and enabled, this parameter MAY contain more than one item and the FAP is expected to select one from the list for *UARFCNDLInUse*. If the self-configuration capability is not available or not enabled, then this parameter SHOULD contain only a single item. The UARFCN values supplied to the list are derived based on the formula defined in 3GPP-TS.25.104 [14] Section 5.4.3 The order of the UARFCN entries has no significance. The carrier spacing in FDD mode is fixed as defined in 3GPP-TS.25.104 [14]. Therefore, the FAP can unambiguously derive the UL UARFCN value based on the selected DL UARFCN.	-
UARFCNDLInUse	unsignedInt	-	The DL UARFCN being used by the FAP. Self-configuration for UARFCN is controlled by *.Capabilities.UMTS.SelfConfig.UARFCNConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.UARFCNSelfConfigEnable* from an enabled perspective. If the self-configuration capability is available and enabled, this parameter indicates the value selected by the FAP among the choices provided in *UARFCNDL*. If the self-configuration capability is not available or not enabled, then this parameter contains the first value in *UARFCNDL*.	-
UARFCNULInUse	unsignedInt	-	The UL UARFCN being used by the FAP. The UL UARFCN that corresponds to *UARFCNDLInUse*.	-

Name	Type	Write	Description	Object Default
UARFCNDLToProtect	string (64)	W	Comma-separated list (maximum length 64) of strings. Each item is a DL UARFCNs to be protected from adjacent channel interference. "Adjacent channel" in this context means offset from the FAP's UARFCN by 5MHz. 3GPP-TS.25.104 [14] Section 6.4.6 If any of the items in the list are adjacent to the FAP's own DL channel, the FAP MUST take the Primary CPICH code power measured on these channels into account as part of its maximum transmit power self-configuration. The UARFCNs in the list can belong to any operator, allowing for protection of the FAP operator's own macro layer as well as that of other operators (only the latter is mandated by the 3GPP-TS.25.104 [14] requirements). The list should take into account the ability of the FAP to self-configure its own DL UARFCN and so SHOULD include any channels (requiring protection) which can potentially be adjacent to the UARFCN selected by the FAP. For example, if only adjacent operator protection is required and the FAP has the ability to self-configure to any channel owned by its operator, this list would be populated with the UARFCNs immediately above and below the range of channels owned by the FAP operator. Adjacent channel protection can cause the FAP transmit power to be reduced down to as low as 8dBm. If an empty string then it indicates that there are no channels adjacent to the FAP that require protection, or that self-configuration of the FAP transmit power is not enabled.	-

Name	Type	Write	Description	Object Default
PrimaryScramblingCode	string (32)	W	Comma-separated list (maximum length 32) (minimum 1 items) of strings. Each item is a Primary DL Scrambling Code used by the FDD mode cell with a numeric range between 0 and 511 inclusive. 3GPP-TS.25.433 [21] Section 9.2.2.34 Self-configuration for PSC is controlled by *.Capabilities.UMTS.SelfConfig.PrimaryScramblingCodeConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.PrimaryScramblingCodeSelfConfigEnable* from an enabled perspective. If the FAP's self-configuration capability for *PrimaryScramblingCode* is available and enabled, this parameter MAY contain more than one item and the FAP is expected to select one from the list for *PrimaryScramblingCodeInUse*. If the self-configuration capability is not available or not enabled, then this parameter SHOULD contain only a single item. The multiplicity of the PSC values can also be expressed by defining a range using ".." (two periods) between two values. In this case, the combination of two values defines the lower-bound and upper-bound of the range inclusive. The following are examples of valid PSC string: "20" (explicitly specifies a single PSC value) "20,30,40" (specifies 3 possible PSC values to select from) "20..40" (specifies 21 possible values between 20 and 40, inclusive) "20..40,50" (specifies 22 possible values between 20 and 40 inclusive and a single value 50) The order of the items has no significance.	-
PrimaryScramblingCodeInUse	unsignedInt	-	The PSC being used by the FAP. Self-configuration for PSC is controlled by *.Capabilities.UMTS.SelfConfig.PrimaryScramblingCodeConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.PrimaryScramblingCodeSelfConfigEnable* from an enabled perspective. If the self-configuration capability is available and enabled, this parameter indicates the value selected by the FAP among the choices provided in *PrimaryScramblingCode*. If the self-configuration capability is not available or not enabled, then this parameter contains the first value in *PrimaryScramblingCode*.	-

Name	Type	Write	Description	Object Default
MaxFAPTxPower	string (64)	W	Defines the maximum transmission power allowed on the FAP, maximum value for the linear sum of the power of all downlink physical channels, that is allowed to be used in a cell. *MaxFAPTxPower* is expressed as a range of allowed maximum power levels with ".." (two periods) between the upper and lower values, i.e. "<Pmax_low>..<Pmax_high>". *MaxFAPTxPower* identifies the limits between which the FAP can self-configure its maximum transmit power. Self-configuration for maximum transmission power is controlled by *.Capabilities.UMTS.SelfConfig.MaxFAPTxPowerConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.MaxFAPTxPowerSelfConfigEnable* from an enabled perspective. <Pmax_low> and <Pmax_high> are measured in dBm and have a range of 0.0 to 20.0 incremented by 0.1 dB. 3GPP-TS.32.642 [29] Section 6.3.9, 3GPP-TS.25.104 [14] Section 6.2.1	-
MaxFAPTxPowerInUse	unsignedInt [0:200]	-	The maximum transmission power measured in *dBm* currently used by the FAP. Actual values of the maximum transmission power are 0.0 *dBm* to 20.0 *dBm* in steps of 0.1 dB. The value of *MaxFAPTxPowerInUse* divided by 10 yields the actual value of the maximum transmission power. Self-configuration for maximum transmission power is controlled by *.Capabilities.UMTS.SelfConfig.MaxFAPTxPowerConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.MaxFAPTxPowerSelfConfigEnable* from an enabled perspective. If the self-configuration capability is available and enabled, this parameter indicates the value selected by the FAP among the range provided in *MaxFAPTxPower*. If the self-configuration capability is not available or not enabled, then this parameter contains a value selected by the ACS.	-

Name	Type	Write	Description	Object Default
MaxULTxPower	string (64)	W	Defines the maximum transmission power level a UE can use on PRACH. *MaxULTxPower* is expressed as a range of allowed maximum power levels with ".." (two periods) between the upper and lower values, i.e. "<Pmax_low>..<Pmax_high>". *MaxULTxPower* identifies the limits between which the FAP can self-configure its maximum transmit power. Self-configuration for maximum transmission power is controlled by *.Capabilities.UMTS.SelfConfig.MaxULTxPowerConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.MaxULTxPowerSelfConfigEnable* from an enabled perspective. <Pmax_low> and <Pmax_high> are measured in dBm and have a range of -50 to 33 incremented by 1. 3GPP-TS.25.331 [18] Section 10.3.6.39	-
MaxULTxPowerInUse	int[-50:33]	-	The maximum transmission power level a UE can use on PRACH. Self-configuration for maximum transmission power is controlled by *.Capabilities.UMTS.SelfConfig.MaxULTxPowerConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.MaxULTxPowerSelfConfigEnable* from an enabled perspective. If the self-configuration capability is available and enabled, this parameter indicates the value selected by the FAP among the range provided in *MaxULTxPower*. If the self-configuration capability is not available or not enabled, then this parameter contains a value selected by the ACS.	-

Name	Type	Write	Description	Object Default
PCPICHPower	string (64)	W	The value of the transmission power of the Primary Common PIlot CHannel (P-CPICH). The P-CPICH physical channel carries the common pilots of the cell. Parameter in SIB5. *PCPICHPower* is expressed as a range of allowed transmission power levels with ".." (two periods) between the upper and lower values, i.e. "<Pmax_low>..<Pmax_high>". *PCPICHPower* identifies the limits between which the FAP can self-configure its transmission power. Self-configuration for transmission power is controlled by *.Capabilities.UMTS.SelfConfig.PCPICHPowerConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.PCPICHPowerSelfConfigEnable* from an enabled perspective. <Pmax_low> and <Pmax_high> are measured in dBm and have a range of -10.0 to 20.0 incremented by 0.1 dB. 3GPP-TS.32.642 [29] Section 6.3.11, 3GPP-TS.25.104 [14] Section 6.2.1	-
PCPICHPowerInUse	int[-100:200]	-	The P-CPICH power measured in *dBm* currently used by the FAP. Actual values of the maximum transmission power are -10.0 *dBm* to 20.0 *dBm* in steps of 0.1 dB. The value of *PCPICHPowerInUse* divided by 10 yields the actual value of the maximum transmission power. Self-configuration for transmission power is controlled by *.Capabilities.UMTS.SelfConfig.PCPICHPowerConfig* from an availability perspective and *.FAPControl.UMTS.SelfConfig.PCPICHPowerSelfConfigEnable* from an enabled perspective. If the self-configuration capability is available and enabled, this parameter indicates the value selected by the FAP among the range provided in *PCPICHPower*. If the self-configuration capability is not available or not enabled, then this parameter contains a value selected by the ACS.	-
PowerOffsetPilotDPDCH	unsignedInt [0:24]	W	Defines the power offset between pilot channel and DPDCH. Actual values of the offset are 0.0 *dB* to 6.0 *dB* in steps of 0.25 *dB*. The value of *PowerOffsetPilotDPDCH* divided by 4 yields the actual value of the offset. 3GPP-TS.25.331 [18] Section 10.3.6.18, 3GPP-TS.25.214 [16] Section 5.2.1	-

Name	Type	Write	Description	Object Default
FAPCoverageTarget	unsignedInt [50:150]	W	Defines the target value measured in *dB* for the range of the FAP's DL coverage, in terms of RF propagation loss. This value can be used by the FAP's self-configuration algorithms to help derive transmit power levels in the presence of co-channel and adjacent channel interference. 3GPP-TS.25.967 [22] Section 7.2.1	-
PSCHPower	int[-350:150]	W	Defines the transmission power offset measured in *dB* of the Primary SCH relative to the Primary CPICH power. Actual values of the transmission power offset are -35.0 *dB* to 15.0 *dB* in steps of 0.1 *dB*. The value of *PSCHPower* divided by 10 yields the actual value of the transmission power offset. 3GPP-TS.32.642 [29] Section 6.3.11, 3GPP-TS.25.433 [21] Section 9.1.24 and Section 9.2.1.21	-
SSCHPower	int[-350:150]	W	Defines the transmission power offset measured in *dB* of the Secondary SCH relative to the Primary CPICH power. Actual values of the transmission power offset are -35.0 *dB* to 15.0 *dB* in steps of 0.1 *dB*. The value of *SSCHPower* divided by 10 yields the actual value of the transmission power offset. 3GPP-TS.32.642 [29] Section 6.3.11, 3GPP-TS.25.433 [21] Section 9.1.24 and Section 9.2.1.21	-
PICHPower	int[-10:5]	W	Defines the maximum transmission power offset measured in *dB* of the PICH channel relative to the Primary CPICH transmission power. 3GPP-TS.32.642 [29] Section 6.3.9, 3GPP-TS.25.433 [21] Section 9.2.1.49A 3GPP-TS.25.331 [18] Section 10.3.6.50	-
PCHPower	int[-350:150]	W	Defines the transmission power offset measured in *dB* of the PCH relative to the Primary CPICH power. Actual values of the transmission power offset are -35.0 *dB* to 15.0 *dB* in steps of 0.1 *dB*. The value of *PCHPower* divided by 10 yields the actual value of the transmission power offset. 3GPP-TS.32.642 [29] Section 6.3.9, 3GPP-TS.25.433 [21] Section 9.1.3.1 and Section 9.2.1.21	-
FACHPower	int[-350:150]	W	Defines the transmission power offset measured in *dB* of the FACH relative to the Primary CPICH power. Actual values of the transmission power offset are -35.0 *dB* to 15.0 *dB* in steps of 0.1 *dB*. The value of *FACHPower* divided by 10 yields the actual value of the transmission power offset. 3GPP-TS.32.642 [29] Section 6.3.9, 3GPP-TS.25.433 [21] Section 9.1.6.1 and Section 9.2.1.21	-

Name	Type	Write	Description	Object Default
BCHPower	int[-350:150]	W	Defines the transmission power offset measured in *dB* of the BCH relative to the Primary CPICH power. Actual values of the transmission power offset are -35.0 *dB* to 15.0 *dB* in steps of 0.1 *dB*. The value of *BCHPower* divided by 10 yields the actual value of the transmission power offset. 3GPP-TS.32.642 [29] Section 9.3.11, 3GPP-TS.25.433 [21] Section 9.1.24 and Section 9.2.1.21	-
AICHPower	int[-22:5]	W	Defines the transmission power offset measured in *dB* of one AICH relative to the Primary CPICH power. Parameter defined in SIB5 3GPP-TS.25.331 [18] Section 10.3.6.3. Transmission power level of AICH, AP-AICH and CD/CA-ICH channels compared to CPICH. 3GPP-TS.32.642 [29] Section 6.3.11, 3GPP-TS.25.433 [21] Section 9.2.2.D	-
CTCHAllocationPeriod	unsignedInt [1:255]	W	The value defines 'N' multiples of M(TTI) for CBS DRX calculations at the UE side.	-
CBSFrameOffset	unsignedInt [0:255]	W	Value of CBS frame offset (CTCH) on DL FACH. Parameter in SIB5	-
MaxTTI	unsignedInt [1:255]	W	Defines the number of radio frames in the TTI of the FACH used for CTCH (MTTI).	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.	object	-	This object contains parameters relating to the neighbor list.	-
MaxIntraFreqCellEntries	unsignedInt	-	The maximum number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.IntraFreqCell.{i}.* table.	-
MaxInterFreqCellEntries	unsignedInt	-	The maximum number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterFreqCell.{i}.* table.	-
IntraFreqCellNumberOfEntries	unsignedInt	-	The number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.IntraFreqCell.{i}.* table.	-
InterFreqCellNumberOfEntries	unsignedInt	-	The number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterFreqCell.{i}.* table.	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.IntraFreqCell.{i}.	object	W	Table containing the intra-frequency cell list provided by the ACS. The table contents may be added/deleted/modified during operation, in which case these changes shall be reflected in the broadcast information as soon as possible. At most one enabled entry in this table can exist with a given value for *PCPICHScramblingCode*.	-
Enable	boolean	W	Enables or disables this entry.	false
MustInclude	boolean	W	Indicates whether this instance of the neighbor shall be included or excluded in the FAP's NL configuration.	false

Name	Type	Write	Description	Object Default
PLMNID	string (6)	W	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of *PLMNID* is 5.	<Empty>
RNCID	unsignedInt [0:65535]	W	RNC-ID of an intra-freq neighbor cell. It uniquely identifies an RNC within a PLMN. Normally, RNC-ID consists of 12 bits (i.e. a range of [0:4095]). However, if the value is larger than 4095, then Extended RNC-ID (range of [4096:65535]) is used in RANAP. The RNC-ID and Extended RNC-ID are combined into a single parameter here as there is no explicit need to have them separated. 3GPP-TS.25.413 [20] Section 9.2.1.39	0
CID	unsignedInt [1:65535]	W	Cell Identifier (C-id) that identifies a cell within an RNS. This Cell Identifier together with the controlling RNC (RNC-ID) constitutes the UTRAN Cell ID (UC-ID) and is used to identify a cell uniquely within UTRAN. C-ID is either 12-bit or 16-bit value. 3GPP-TS.25.401 [19] Section 6.1.5.	-
LAC	unsignedInt [0:65535]	W	Location Area Code (LAC). The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the Location Area ID (LAI). 3GPP-TS.23.003 [8] Section 4.1 3GPP-TS.25.413 [20] Section 9.2.3.6	0
RAC	unsignedInt [0:255]	W	Routing Area Code (RAC). The concatenation of PLMN ID (MCC+MNC), LAC, and RAC uniquely identifies the Routing Area ID (RAI). 3GPP-TS.23.003 [8] Section 4.2 3GPP-TS.25.413 [20] Section 9.2.3.7	0
URA	unsignedInt [0:65535]	W	UTRAN Registration Area (URA) 3GPP-TS.23.401 [12]. Indicates to the UE which *URA* it shall use in case of overlapping URAs. 3GPP-TS.25.331 [18] Section 10.3.2.6	0
PCPICHScramblingCode	unsignedInt [0:511]	W	Primary CPICH scrambling code.	0
PCPICHTxPower	int[-100:500]	W	Primary CPICH Tx power in *dBm*. Actual values of the power are -10.0 *dBm* to 50.0 *dBm* in steps of 0.1 dB. The value of *PCPICHTxPower* divided by 10 yields the actual value of the power. 3GPP-TS.32.642 [29] Section 6.3.11, 3GPP-TS.25.433 [21] Section 2.2.33	0

Name	Type	Write	Description	Object Default
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterFreqCell.{i}.	object	W	Table containing the inter-frequency cell list provided by the ACS. The table contents may be added/deleted/modified during operation, in which case these changes shall be reflected in the broadcast information as soon as possible. At most one enabled entry in this table can exist with the same values for *PCPICHScramblingCode* and *UARFCNDL*.	-
Enable	boolean	W	Enables or disables this entry.	false
MustInclude	boolean	W	Indicates whether this instance of the neighbor shall be included or excluded in the FAP's NL configuration.	false
PLMNID	string (6)	W	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of *PLMNID* is 5.	<Empty>
RNCID	unsignedInt [0:65535]	W	RNC-ID of an intra-freq neighbor cell. It uniquely identifies an RNC within a PLMN. Normally, RNC-ID consists of 12 bits (i.e. a range of [0:4095]). However, if the value is larger than 4095, then Extended RNC-ID (range of [4096:65535]) is used in RANAP. The RNC-ID and Extended RNC-ID are combined into a single parameter here as there is no explicit need to have them separated. 3GPP-TS.25.413 [20] Section 9.2.1.39	0
CID	unsignedInt [1:65535]	W	Cell Identifier (C-id) that identifies a cell within an RNS. This Cell Identifier together with the controlling RNC (RNC-ID) constitutes the UTRAN Cell ID (UC-ID) and is used to identify a cell uniquely within UTRAN. C-ID is either 12-bit or 16-bit value. 3GPP-TS.25.401 [19] Section 6.1.5.	-
LAC	unsignedInt [0:65535]	W	Location Area Code (LAC). The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the Location Area ID (LAI). 3GPP-TS.23.003 [8] Section 4.1 3GPP-TS.25.413 [20] Section 9.2.3.6	0
RAC	unsignedInt [0:255]	W	Routing Area Code (RAC). The concatenation of PLMN ID (MCC+MNC), LAC, and RAC uniquely identifies the Routing Area ID (RAI). 3GPP-TS.23.003 [8] Section 4.2 3GPP-TS.25.413 [20] Section 9.2.3.7	0
URA	unsignedInt [0:65535]	W	UTRAN Registration Area (URA) 3GPP-TS.23.401 [12]. Indicates to the UE which *URA* it shall use in case of overlapping URAs. 3GPP-TS.25.331 [18] Section 10.3.2.6	0

Name	Type	Write	Description	Object Default
UARFCNUL	unsignedInt [0:16383]	W	The UL UTRA Absolute Radio Frequency Channel Number (UARFCN) in an FDD mode cell. 3GPP-TS.25.433 [21]	-
UARFCNDL	unsignedInt [0:16383]	W	The DL UTRA Absolute Radio Frequency Channel Number (UARFCN) in an FDD mode cell. 3GPP-TS.25.433 [21]	-
PCPICHScramblingCode	unsignedInt [0:511]	W	Primary CPICH scrambling code.	0
PCPICHTxPower	int[-100:500]	W	Primary CPICH Tx power in *dBm*. Actual values of the power are -10.0 *dBm* to 50.0 *dBm* in steps of 0.1 dB. The value of *PCPICHTxPower* divided by 10 yields the actual value of the power. 3GPP-TS.32.642 [29] Section 6.3.11, 3GPP-TS.25.433 [21] Section 2.2.33	0
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.	object	-	The inter-RAT cell lists separated by technology. 3GPP-TS.25.331 [18] Section 10.3.7.23	-
MaxGSMEntries	unsignedInt	-	The maximum number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.GSM.{i}.* table.	-
GSMNumberOfEntries	unsignedInt	-	Number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.GSM.{i}.* table.	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.GSM.{i}.	object	W	Table containing the inter-RAT cell list for GSM provided by the ACS. The table contents may be added/deleted/modified during operation, in which case these changes shall be reflected in the broadcast information as soon as possible. At most one enabled entry in this table can exist with a given value for *BCCHARFCN*.	-
Enable	boolean	W	Enables or disables this entry.	false
MustInclude	boolean	W	Indicates whether this instance of the neighbor shall be included or excluded in the FAP's NL configuration.	false
PLMNID	string (6)	W	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of *PLMNID* is 5.	<Empty>
LAC	unsignedInt [0:65535]	W	Location Area Code (LAC). The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the Location Area ID (LAI). 3GPP-TS.23.003 [8] Section 4.1 3GPP-TS.25.413 [20] Section 9.2.3.6	0

Name	Type	Write	Description	Object Default
BSIC	unsignedInt [0:255]	W	BSIC of the cell per 3GPP-TS.23.003 [8], consisting of: Bit 7:6 – not used (“00”) Bit 5:3 – NCC (PLMN Color Code) Bit 2:0 – BCC (BS color code) For example, if NCC is 7 and BCC is 2 you would have 00111010 (binary) or 0x3A (hex), and the value of this parameter would be 58.	-
CI	unsignedInt [0:65535]	W	Cell ID of the cell per 3GPP-TS.23.003 [8] Section 4.3.1.	-
BandIndicator	string	W	Indicates how to interpret the BCCH ARFCN. Enumeration of: *GSM 850* *GSM 900* *DCS 1800* *PCS 1900*	-
BCCHARFCN	unsignedInt [0:1023]	W	ARFCN of this cell.	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.	object	-	This object contains parameters relating to the neighbor list used by the FAP based on its self-configuration capability and *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.* configuration of adding and excluding cells.	-
MaxIntraFreqCellEntries	unsignedInt	-	The maximum number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.IntraFreqCell.{i}.* table.	-
MaxInterFreqCellEntries	unsignedInt	-	The maximum number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterFreqCell.{i}.* table.	-
IntraFreqCellNumberOfEntries	unsignedInt	-	The number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.IntraFreqCell.{i}.* table.	-
InterFreqCellNumberOfEntries	unsignedInt	-	The number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterFreqCell.{i}.* table.	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.IntraFreqCell.{i}.	object	-	Table containing the intra-frequency cell list. At most one entry in this table can exist with a given value for *PCPICHScramblingCode*.	-
PLMNID	string (6)	-	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of *PLMNID* is 5.	-

Name	Type	Write	Description	Object Default
RNCID	unsignedInt [0:65535]	-	RNC-ID of an intra-freq neighbor cell. It uniquely identifies an RNC within a PLMN. Normally, RNC-ID consists of 12 bits (i.e. a range of [0:4095]). However, if the value is larger than 4095, then Extended RNC-ID (range of [4096:65535]) is used in RANAP. The RNC-ID and Extended RNC-ID are combined into a single parameter here as there is no explicit need to have them separated. 3GPP-TS.25.413 [20] Section 9.2.1.39	-
CID	unsignedInt [0:65535]	-	C-ID of the intra-freq neighbour cell 3GPP-TS.25.401 [19] Section 6.1.5. If *RNCID* is larger than 4095, then *CID* will be 12 bits (i.e. a range of [0:4095]), else *CID* is 16 bits long (i.e. range of [4096:65535]). This is needed to facilitate Femto to Macro handover. Used in 3GPP-TS.25.413 [20] Section 9.2.1.28 as part of Target Cell ID.	-
LAC	unsignedInt [0:65535]	-	Location Area Code (LAC). The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the Location Area ID (LAI). 3GPP-TS.23.003 [8] Section 4.1 3GPP-TS.25.413 [20] Section 9.2.3.6	-
RAC	unsignedInt [0:255]	-	Routing Area Code (RAC). The concatenation of PLMN ID (MCC+MNC), LAC, and RAC uniquely identifies the Routing Area ID (RAI). 3GPP-TS.23.003 [8] Section 4.2 3GPP-TS.25.413 [20] Section 9.2.3.7	-
URA	unsignedInt [0:65535]	-	UTRAN Registration Area (URA) 3GPP-TS.23.401 [12]. Indicates to the UE which *URA* it shall use in case of overlapping URAs. 3GPP-TS.25.331 [18] Section 10.3.2.6	-
PCPICHScramblingCode	unsignedInt [0:511]	-	Primary CPICH scrambling code.	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.InterFreqCell.{i}.	object	-	Table containing the inter-frequency cell list. At most one entry in this table can exist with the same values for *PCPICHScramblingCode* and *UARFCNDL*.	-
PLMNID	string (6)	-	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of *PLMNID* is 5.	-

Name	Type	Write	Description	Object Default
RNCID	unsignedInt [0:65535]	-	RNC-ID of an intra-freq neighbor cell. It uniquely identifies an RNC within a PLMN. Normally, RNC-ID consists of 12 bits (i.e. a range of [0:4095]). However, if the value is larger than 4095, then Extended RNC-ID (range of [4096:65535]) is used in RANAP. The RNC-ID and Extended RNC-ID are combined into a single parameter here as there is no explicit need to have them separated. 3GPP-TS.25.413 [20] Section 9.2.1.39	-
CID	unsignedInt [0:65535]	-	C-ID of the intra-freq neighbour cell 3GPP-TS.25.401 [19] Section 6.1.5. If *RNCID* is larger than 4095, then *CID* will be 12 bits (i.e. a range of [0:4095]), else *CID* is 16 bits long (i.e. range of [4096:65535]). This is needed to facilitate Femto to Macro handover. Used in 3GPP-TS.25.413 [20] Section 9.2.1.28 as part of Target Cell ID.	-
LAC	unsignedInt [0:65535]	-	Location Area Code (LAC). The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the Location Area ID (LAI). 3GPP-TS.23.003 [8] Section 4.1 3GPP-TS.25.413 [20] Section 9.2.3.6	-
RAC	unsignedInt [0:255]	-	Routing Area Code (RAC). The concatenation of PLMN ID (MCC+MNC), LAC, and RAC uniquely identifies the Routing Area ID (RAI). 3GPP-TS.23.003 [8] Section 4.2 3GPP-TS.25.413 [20] Section 9.2.3.7	-
URA	unsignedInt [0:65535]	-	UTRAN Registration Area (URA) 3GPP-TS.23.401 [12]. Indicates to the UE which *URA* it shall use in case of overlapping URAs. 3GPP-TS.25.331 [18] Section 10.3.2.6	-
UARFCNUL	unsignedInt [0:16383]	-	The UL UTRA Absolute Radio Frequency Channel Number (UARFCN) in an FDD mode cell. 3GPP-TS.25.433 [21]	-
UARFCNDL	unsignedInt [0:16383]	-	The DL UTRA Absolute Radio Frequency Channel Number (UARFCN) in an FDD mode cell. 3GPP-TS.25.433 [21]	-
PCPICHScramblingCode	unsignedInt [0:511]	-	Primary CPICH scrambling code.	-
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.InterRATCell.	object	-	The inter-RAT cell lists separated by technology. 3GPP-TS.25.331 [18] Section 10.3.7.23	-
MaxGSMEntries	unsignedInt	-	The maximum number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.GSM.{i}.* table.	-
GSMNumberOfEntries	unsignedInt	-	Number of entries in the *.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.GSM.{i}.* table.	-

Name	Type	Write	Description	Object Default
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.InterRATCell.GSM.{i}.	object	-	Table containing the inter-RAT cell list for GSM. At most one entry in this table can exist with a given value for *BCCHARFCN*.	-
PLMNID	string (6)	-	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of *PLMNID* is 5.	-
LAC	unsignedInt [0:65535]	-	Location Area Code (LAC). The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the Location Area ID (LAI). 3GPP-TS.23.003 [8] Section 4.1 3GPP-TS.25.413 [20] Section 9.2.3.6	-
BSIC	unsignedInt [0:255]	-	BSIC of the cell per 3GPP-TS.23.003 [8], consisting of: Bit 7:6 – not used (“00”) Bit 5:3 – NCC (PLMN Color Code) Bit 2:0 – BCC (BS color code) For example, if NCC is 7 and BCC is 2 you would have 00111010 (binary) or 0x3A (hex), and the value of this parameter would be 58.	-
CI	unsignedInt [0:65535]	-	Cell ID of the cell per 3GPP-TS.23.003 [8] Section 4.3.1.	-
BandIndicator	string	-	Indicates how to interpret the BCCH ARFCN. Enumeration of: *GSM 850* *GSM 900* *DCS 1800* *PCS 1900*	-
BCCHARFCN	unsignedInt [0:1023]	-	ARFCN of this cell.	-
.FAPService.{i}.CellConfig.UMTS.RAB.	object	-	This object contains parameters relating to Radio Access layers 3GPP-TS.32.405 [26]	-
RABSuccEstabCS	unsignedInt	-	The number of successfully established RABs (with or without queueing) for CS domain.	-
RABFailEstabCS	unsignedInt	-	The number of RAB establishment failures for CS domain.	-
RABSuccEstabPS	unsignedInt	-	The number of successfully established RABs for PS domain.	-
RABFailEstabPS	unsignedInt	-	The number of RABs failed to establish for PS domain.	-
RABSuccModCS	unsignedInt	-	The number of successfully modified RABs for CS domain.	-
RABFailModCS	unsignedInt	-	The number of RABs failed to modify for CS domain.	-

Name	Type	Write	Description	Object Default
RABSuccModPS	unsignedInt	-	The number of successfully modified RABs for PS domain.	-
RABFailModPS	unsignedInt	-	The number of RABs failed to modify for PS domain.	-
RABSuccRelCS	unsignedInt	-	The number of successfully released RABs for CS domain.	-
RABFailRelCS	unsignedInt	-	The number of RABs failed to release for CS domain.	-
RABSuccRelPS	unsignedInt	-	The number of successfully released RABs for PS domain.	-
RABFailRelPS	unsignedInt	-	The number of RABs failed to release for PS domain.	-
RABCSSetupTimeMean	unsignedInt	-	The mean time in *milliseconds* for a FAP to establish a RAB CS connection. This measurement is obtained by accumulating the time intervals for each successful RAB establishment between the receipt by the FAP of a RANAP "RAB ASSIGNMENT REQUEST" message to establish a RAB for CS domain, and the first corresponding (based on RAB ID) transmission by the FAP of a RANAP "RAB ASSIGNMENT RESPONSE" message for successfully established RABs over a granularity period (Sample Interval 3GPP-TS.32.582 [27] Section 6.3.2). This end value of the time will then be divided by the number of successfully established RABs observed in the granularity period to give the arithmetic mean. The accumulator SHALL be reinitialized at the beginning of each granularity period.	-
RABCSSetupTimeMax	unsignedInt	-	The maximum time in *milliseconds* for a FAP to establish a RAB CS connection. This measurement is obtained by monitoring the time intervals for each successful RAB establishment between the receipt by the FAP of a RANAP "RAB ASSIGNMENT REQUEST" message to establish a RAB for CS domain, and the first corresponding (based on RAB ID) transmission by the FAP of a RANAP "RAB ASSIGNMENT RESPONSE" message for successfully established RABs. The high tide mark of this time will be stored in a gauge; the gauge SHALL be reinitialized at the beginning of each granularity period (Sample Interval 3GPP-TS.32.582 [27] Section 6.3.2).	-

Name	Type	Write	Description	Object Default
RABPSSetupTimeMean	unsignedInt	-	The mean time in *milliseconds* for a FAP to establish a RAB PS connection. This measurement is obtained by accumulating the time intervals for each successful RAB establishment between the receipt by the FAP of a RANAP "RAB ASSIGNMENT REQUEST" message to establish a RAB for PS domain, and the first corresponding (based on RAB ID) transmission by the FAP of a RANAP "RAB ASSIGNMENT RESPONSE" message for successfully established RABs over a granularity period (Sample Interval 3GPP-TS.32.582 [27] Section 6.3.2). This end value of the time will then be divided by the number of successfully established RABs observed in the granularity period to give the arithmetic mean. The accumulator SHALL be reinitialized at the beginning of each granularity period.	-
RABPSSetupTimeMax	unsignedInt	-	The maximum time in *milliseconds* for a FAP to establish a RAB PS connection. This measurement is obtained by monitoring the time intervals for each successful RAB establishment between the receipt by the FAP of a RANAP "RAB ASSIGNMENT REQUEST" message to establish a RAB for PS domain, and the first corresponding (based on RAB ID) transmission by the FAP of a RANAP "RAB ASSIGNMENT RESPONSE" message for successfully established RABs. The high tide mark of this time will be stored in a gauge; the gauge SHALL be reinitialized at the beginning of each granularity period (Sample Interval 3GPP-TS.32.582 [27] Section 6.3.2).	-
FailHO	unsignedInt	-	The number of failed Handovers.	-
SuccHO	unsignedInt	-	The number of successful Handovers.	-
.FAPService.{i}.Transport.	object	-	This object contains parameters relating to the transport	-
.FAPService.{i}.Transport.SCTP.	object	-	This object contains parameters relating to SCTP as defined in RFC4960 [41] and RFC3873 [38].	-
Enable	boolean	W	Enables or disables the whole SCTP object and allows the setup or release of SCTP associations and their related streams.	-
HBInterval	unsignedInt [1:]	W	Heartbeat interval in *seconds*.	-
MaxAssociationRetransmits	unsignedInt	W	Maximum number of consecutive retransmissions to a peer before an endpoint considers that the peer is unreachable and closes the association.	-
MaxInitRetransmits	unsignedInt	W	Number of retransmission per connection-attempt.	-
MaxPathRetransmits	unsignedInt	W	Maximum retransmission per destination address.	-
RTOInitial	unsignedInt	W	Initial value for Retransmit timeout in *milliseconds*. A retransmission time value of zero means immediate retransmission.	-
RTOMax	unsignedInt	W	Maximum value for Retransmit timeout in *milliseconds*. A retransmission time value of zero means immediate retransmission.	-

Name	Type	Write	Description	Object Default
RTOMin	unsignedInt	W	Minimum value for Retransmit timeout in *milliseconds*. A retransmission time value of zero means immediate retransmission. The value of this parameter MUST be lower than or equal to *RTOMax*.	-
ValCookieLife	unsignedInt	W	Valid cookie life in the 4-way start-up handshake procedure in *milliseconds*.	-
OutOfBlues	unsignedInt	-	The number of correctly formed SCTP packets, including the proper checksum, but for which the receiver was unable to identify an appropriate association.	-
ChecksumErrors	unsignedInt	-	The number of SCTP packets received with an invalid checksum.	-
OutCtrlChunks	unsignedInt	-	The number of SCTP control chunks sent (retransmissions are not included).	-
OutOrderChunks	unsignedInt	-	The number of SCTP ordered data chunks sent (retransmissions are not included).	-
OutUnorderChunks	unsignedInt	-	The number of SCTP unordered chunks (data chunks in which the U bit is set to 1) sent (retransmissions are not included).	-
InCtrlChunks	unsignedInt	-	The number of SCTP control chunks received (no duplicate chunks included).	-
InOrderChunks	unsignedInt	-	The number of SCTP ordered data chunks received (no duplicate chunks included).	-
InUnorderChunks	unsignedInt	-	The number of SCTP unordered chunks (data chunks in which the U bit is set to 1) received (no duplicate chunks included).	-
FragUsrMsgs	unsignedInt	-	The number of user messages that have been sent fragmented.	-
ReasmUsrMsgs	unsignedInt	-	The number of user messages that have been received fragmented and submitted to the reassembly process.	-
OutSCTPPacks	unsignedInt	-	The number of SCTP packets sent. Retransmitted DATA chunks are included.	-
InSCTPPacks	unsignedInt	-	The number of SCTP packets received. Duplicates are included.	-
Discontinuity	dateTime	-	The time of the last discontinuity.	-
AssocNumberOfEntries	unsignedInt	-	The number of entries in the *.Transport.SCTP.Assoc.{i}.* Table	-
.FAPService.{i}.Transport.SCTP.Assoc.{i}.	object	-	SCTP Association Table At most one entry in this table can exist with the same values for *PrimaryPeerAddress* and *LocalPort*.	-
Status	string	-	The status of this SCTP association entry. Enumeration of: *Disabled* *Active* (The Association is active.) *Progressing* (The Association establishment is in progress.) *ShuttingDown* (The Association graceful shutdown is in progress.) *Error* (Indicates a locally defined error condition., OPTIONAL)	-

Name	Type	Write	Description	Object Default
PrimaryPeerAddress	string	-	The primary IP address of the peer SCTP association entity.	-
LocalPort	unsignedInt [0:63999]	-	The local SCTP port number used for this SCTP association.	-
InStreams	unsignedInt	-	The number of Inbound Streams according to the negotiation at association start-up.	-
OutStreams	unsignedInt	-	The number of Outbound Streams according to the negotiation at association start-up.	-
StartTime	dateTime	-	The start Time for the present SCTP association.	-
Discontinuity	dateTime	-	The time of the last discontinuity.	-
.FAPService.{i}.Transport.RealTime.	object	-	This object contains parameters relating to Real Time Transport using RTP.	-
RTCPEnable	boolean	W	Enable or disable RTCP.	-
SentPackets	unsignedInt	-	The number of sent RTP packets.	-
RcvPackets	unsignedInt	-	The number of received RTP packets.	-
BytesSent	unsignedInt	-	Total number of RTP payload bytes sent.	-
BytesReceived	unsignedInt	-	Total number of RTP payload bytes received.	-
.FAPService.{i}.Transport.RealTime.Perf.	object	-	This object contains performances relating to Real Time Transport using RTP.	-
LostRcvPackets	unsignedInt	-	The number of Lost RTP packets in reception.	-
LostFarEndPackets	unsignedInt	-	The number of Far End Lost RTP packets.	-
Overruns	unsignedInt	-	Total number of times the receive jitter buffer has overrun.	-
Underruns	unsignedInt	-	Total number of times the receive jitter buffer has underrun for a CS-domain RAB.	-
MeanRTT	unsignedInt	-	The mean Round Trip Time in *microseconds* as computed by the source. RFC3550 [37]	-
MaxRTT	unsignedInt	-	The maximum Round Trip Time in *microseconds* as computed by the source. RFC3550 [37]	-
MeanReceiveJitter	unsignedInt	-	The mean receive jitter in *microseconds* as computed by the source. RFC3550 [37]	-
MaxReceiveJitter	unsignedInt	-	The maximum receive jitter in *microseconds* as computed by the source. RFC3550 [37]	-
MeanFarEndJitter	unsignedInt	-	The mean far end jitter in *microseconds* as computed by the source. RFC3550 [37]	-
MaxFarEndJitter	unsignedInt	-	The maximum far end jitter in *microseconds* as computed by the source. RFC3550 [37]	-
.FAPService.{i}.Transport.Packet.	object	-	This object contains parameters relating to Packet Transport using GTP-U.	-
EchoInterval	unsignedInt	W	Echo interval in *seconds*. An Echo interval value of zero means echo is disabled.	-
SentPackets	unsignedInt	-	The number of sent GTP-U packets.	-
RcvPackets	unsignedInt	-	The number of received GTP-U packets.	-
.FAPService.{i}.Transport.Tunnel.	object	-	This object contains parameters relating to Tunneling.	-
IKESANumberOfEntries	unsignedInt	-	The number of entries in the *.Transport.Tunnel.IKESA.{i}.* table.	-
ChildSANumberOfEntries	unsignedInt	-	The number of entries in the *.Transport.Tunnel.ChildSA.{i}.* table.	-
MaxVirtualInterfaces	unsignedInt	-	The maximum number of virtual interfaces.	-

Name	Type	Write	Description	Object Default
VirtualInterfaceNumberOfEntries	unsignedInt	-	The number of entries in the *.Transport.Tunnel.VirtualInterface.{i}.* table.	-
.FAPService.{i}.Transport.Tunnel.IKESA.{i}.	object	-	IKE IPsec Security Association Table. This Table is a member of the IPsec Security Association Database (SAD). RFC4301 [39]. At most one entry in this table can exist with the same values for *IPAddress* and *SubnetMask*.	-
Status	string	-	The status of this IKE SA entry. Enumeration of: *Disabled* *Active* *Completed* *Progressing* *Error* (This value MAY be used by the CPE to indicate a locally defined error condition., OPTIONAL)	-
PeerAddress	string	-	The IP address of the peer SecGW.	-
CreationTime	dateTime	-	The time that the current IKE SA was set up.	-
IPAddress	string	-	The current IP address assigned to this interface by IKEv2.	-
SubnetMask	string	-	The current subnet mask assigned to this interface by IKEv2.	-
DNSServers	string (256)	-	Comma-separated list (maximum length 256) of IPAddresses. Each item is an IP Address of a DNS server for this interface assigned to this interface by IKEv2.	-
DHCPServers	string (256)	-	Comma-separated list (maximum length 256) of IPAddresses. Each item is an IP address of a DHCP server for this interface. A non empty list instructs the CPE to send any internal DHCP request to the address contained within this parameter.	-
IntegrityErrors	unsignedInt	-	The number of inbound packets discarded by the IKE SA due to Integrity checking errors.	-
OtherErrors	unsignedInt	-	The number of inbound packets discarded by the IKE SA due to other errors, such as anti-replay errors.	-
AuthErrors	unsignedInt	-	The number of inbound packets discarded by the IKE SA due to authentication errors.	-
.FAPService.{i}.Transport.Tunnel.ChildSA.{i}.	object	-	Child IPsec Security Association Table. This Table is a member of the IPsec Security Association Database (SAD). RFC4301 [39]. At most one entry in this table can exist with a given value for *SPI*.	-
ParentID	unsignedInt	-	The value MUST be the instance number of a row in the *.Transport.Tunnel.IKESA* table, or else be 0 if no row is currently referenced. If the referenced row is deleted, the parameter value MUST be set to 0.	-
SPI	unsignedInt	-	SPI value of the Child SA.	-
DirectionOutbound	boolean	-	Traffic Direction. If *true* this Child SA refers to outbound traffic. If *false* this Child SA refers to inbound traffic.	-
CreationTime	dateTime	-	The time that the current Child SA was set up.	-

Name	Type	Write	Description	Object Default
Traffic	unsignedInt	-	The measured traffic in *bytes* transferred by the Child SA.	-
IntegrityErrors	unsignedInt	-	The number of inbound *packets* discarded by the Child SA due to integrity checking errors.	-
ReplayErrors	unsignedInt	-	The number of inbound *packets* discarded by the Child SA due to anti-replay errors.	-
.FAPService.{i}.Transport.Tunnel.VirtualInterface.{i}.	object	W	Virtual Interfaces used for associating the tunnel (ephemeral) childSA pairs with InternetGatewayDevice.QueueManagement.Classification.{i}. and InternetGatewayDevice.QueueManagement.Queue.{i}. At most one enabled entry in this table can exist with the same values for *CryptoProfile* and *DSCPMarkPolicy*.	-
Enable	boolean	W	Enables and disables this entry.	false
CryptoProfile	string	W	The value MUST be the full path name of a row in the *.Transport.Security.CryptoProfile* table. If the referenced object is deleted, the parameter value MUST be set to an empty string. If multiple instances of VirtualInterface point to the same CryptoProfile instance, the associated *.Transport.Security.CryptoProfile.{i}.MaxChildSA* determines whether a new IKE session will be created (dynamically) to negotiate the child SA(s) for each of the virtual interfaces; otherwise, they are negotiated through the same IKE session.	<Empty>
DSCPMarkPolicy	int[-2:]	W	DSCP to mark the outer IP header for traffic that is associated with this virtual interface. A value of -1 indicates copy from the incoming packet. A value of -2 indicates automatic marking of DSCP as defined for the UMTS QoS class 3GPP-TS.23.107 [11]. De-tunneled packets are never re-marked.	-1
.FAPService.{i}.Transport.Security.	object	-	This object contains parameters relating to Security.	-
SecretNumberOfEntries	unsignedInt	-	The number of entries in the *.Transport.Security.Secret.{i}.* table.	-
PkeyNumberOfEntries	unsignedInt	-	The number of entries in the *.Transport.Security.Pkey.{i}.* table.	-
CryptoProfileNumberOfEntries	unsignedInt	-	The number of entries in the *.Transport.Security.CryptoProfile.{i}.* table.	-
.FAPService.{i}.Transport.Security.Secret.{i}.	object	-	Shared Secret Table. This table gathers information about all types of shared secret-based credentials (UICC). At most one entry in this table can exist with a given value for *UICCCardID*.	-
Enable	boolean	W	Enable or disable this Shared Secret entry	-

Name	Type	Write	Description	Object Default
Type	string	-	The type of this Shared Secret entry. Enumeration of: *SIM* *USIM*	-
Status	string	-	The status of this Shared Secret entry. Enumeration of: *Present* *Not_present* *Error* (This value MAY be used by the CPE to indicate a locally defined error condition.)	-
UICCCardID	string (19)	-	The UICC Card Identifier (UICCID), only numeric values are allowed. ITU-E.118 [31]	-
.FAPService.{i}.Transport.Security.Pkey.{i}.	object	-	Public Key Table. This table gathers information about all types of public key-based credentials, such as X.509 certificates. RFC3280 [36]. At most one entry in this table can exist with a given value for *SerialNumber*.	-
Enable	boolean	W	Enables or disables this Public Key entry.	-
LastModif	dateTime	-	The last modification time of this Public Key entry.	-
SerialNumber	string (64)	-	The Serial Number field in an X.509 certificate	-
Issuer	string (256)	-	The Issuer field in an X.509 certificate; i.e. the Distinguished Name (DN) of the entity who has signed the certificate.	-
NotBefore	dateTime	-	The beginning of the certificate validity period; i.e. the Not Before field in an X.509 certificate.	-
NotAfter	dateTime	-	The end of the certificate validity period; i.e., the Not After field in an X.509 certificate.	-
Subject	string (256)	-	The X.501 Distinguished Name (DN) of the entity associated with the Public Key; i.e., the Subject field in an X.509 certificate.	-
SubjectAlt	string (256)	-	Comma-separated list (maximum length 256) of strings. Each item is a DNS Name. The Subject Alternative Names extension field in an X.509 certificate.	-
.FAPService.{i}.Transport.Security.CryptoProfile.{i}.	object	W	This object contains parameters relating to IKEv2 and IPsec crypto profiles, which are essentially a subset of the typical IPsec SPD. RFC4301 [39]. At most one enabled entry in this table can exist with all the same values for *AuthMethod*, *IKEEncrypt*, *IKEPRF*, *IKEIntegrity*, *IKEDH*, *ESPEncrypt* and *ESPIntegrity*.	-
Enable	boolean	W	Enables and disables this entry.	false

Name	Type	Write	Description	Object Default
AuthMethod	string	W	Specifies the Security mechanism and set of credentials used by the FAP to authenticate itself. The value MUST be the full path name of a row in the *.Transport.Security.Pkey* or *.Transport.Security.Secret* tables. If the referenced object is deleted, the parameter value MUST be set to an empty string. If an empty string, the FAP chooses the authentication method based on local policy. In order to configure the FAP for both FAP and hosting-party authentication, the object is populated with an enabled instance of the Pkey object.	<Empty>
MaxChildSA	unsignedInt [2, 4, 6, 8, 10]	W	Controls the maximum number of child SAs that can be negotiated by a single IKE session.	2
IKEEncrypt	string	W	Comma-separated list of strings. IKEv2 encryption algorithm. RFC4307 [40] Each list item is an enumeration of: *3DES-CBC* *AES-CBC*	"AES-CBC"
IKEPRF	string	W	Comma-separated list of strings. IKEv2 pseudo-random function. RFC4307 [40]. Each list item is an enumeration of: *HMAC-SHA1* *AES-XCBC-PRF-128*	"HMAC-SHA1"
IKEIntegrity	string	W	Comma-separated list of strings. IKEv2 integrity function. RFC4307 [40] Each list item is an enumeration of: *HMAC-SHA1-96* *AES-XCBC-MAC-96*	"HMAC-SHA1-96"
IKEDH	string	W	Comma-separated list of strings. IKEv2 pseudo-random function. RFC4307 [40] Each list item is an enumeration of: *1024* *2048*	"2048"
ESPEncrypt	string	W	Comma-separated list of strings. IPsec encryption algorithm. RFC4307 [40] Each list item is an enumeration of: *3DES-CBC* *AES-CBC* *Null*	"AES-CBC"
ESPIntegrity	string	W	Comma-separated list of strings. IPsec integrity function. RFC4307 [40] Each list item is an enumeration of: *HMAC-SHA1-96* *AES-XCBC-MAC-96*	"HMAC-SHA1-96"
IPsecWindowSize	unsignedInt	W	The size of the Anti-Replay Window. If 0 Sequence Number Verification is disabled.	0

Name	Type	Write	Description	Object Default
IKERekeyLifetime	unsignedInt	W	IKEv2 SA rekey timeout in *seconds*.	-
IPsecRekeyLifetimeByte	unsignedInt	W	IPsec SA rekey timeout in *Kilobytes*.	-
IPsecRekeyLifetimeTime	unsignedInt	W	IPsec SA rekey timeout in *seconds*.	-
DPDTimer	unsignedInt	W	DPD timeout in *seconds*.	300
NATTKeepaliveTimer	unsignedInt	W	NAT-T keepalive timeout in *seconds*.	180
.FAPService.{i}.REM.	object	-	This object contains parameters relating to REM (Radio Environment Measurement).	-
.FAPService.{i}.REM. WCDMAFDD.	object	-	This object contains parameters relating to radio environment measurement capabilities for the UMTS system.	-
InServiceHandling	string	W	FAP REM behavior with respect to ongoing active connections. Enumeration of: *Immediate* (Immediately perform REM, even if have active connections or idle camping UE that may be disrupted.) *Delayed* (Wait to initiate REM until no CS bearers or PS bearers of streaming or higher QoS class are assigned.)	-
ScanOnBoot	boolean	W	Enables or disables Radio Environment Measurement during the FAP start up.	-
ScanPeriodically	boolean	W	Enable Periodic Radio Environment Measurement on all enabled RAT.	-
PeriodicInterval	unsignedInt	W	When *ScanPeriodically* is *true*, this value indicates the interval in *seconds* which REM is performed while the FAP service is enabled.	-
PeriodicTime	dateTime	W	An absolute time reference in UTC to determine when the CPE will initiate the periodic REM. Each REM MUST occur at (or as soon as possible after) this reference time plus or minus an integer multiple of the *PeriodicInterval*. *PeriodicTime* is used only to set the "phase" of the REM. The actual value of *PeriodicTime* can be arbitrarily far into the past or future. For example, if *PeriodicInterval* is 86400 (a day) and if *PeriodicTime* is set to UTC midnight on some day (in the past, present, or future) then periodic REMs will occur every day at UTC midnight. These MUST begin on the very next midnight, even if *PeriodicTime* refers to a day in the future. The Unknown Time value defined in TR-106a2 [4] Section 3.2 indicates that no particular time reference is specified. That is, the CPE MAY locally choose the time reference, and needs only to adhere to the specified PeriodicInformInterval. If absolute time is not available to the CPE, its periodic REM behavior MUST be the same as if *PeriodicTime* parameter was set to the Unknown Time value.	-

Name	Type	Write	Description	Object Default
REMPLMNList	string (32)	W	Comma-separated list (maximum length 32) of strings. Each item is a PLMN ID to measure. PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. If an empty string, then no specific PLMN ID is provided, meaning that the FAP is required to scan all available PLMN IDs.	-
REMBandList	string	W	Comma-separated list of strings (maximum item length 64). Each item is a UMTS Band to measure. Each band is identified in by a roman numeral 3GPP-TS.25.104 [14]. If an empty string then no specific UMTS band is provided, meaning that the FAP is required to scan all available bands. The order of the band indicator has no significance.	-
UARFCNDLList	string (64)	W	Comma-separated list (maximum length 64) of strings. Each entry is a UARFCN in the DL direction to measure. If an empty string, then no specific UARFCN is provided, meaning that the FAP is required to scan all UARFCNs that it is aware of.	-
ScanTimeout	unsignedInt	W	Specifies the time-out value in *seconds*, measured from the start of the REM scan, before the REM scan will time out.	-
ScanStatus	string	-	Indicates the current status of this scan. Enumeration of: *Indeterminate* (The scan has not been executed and there are no valid scan results available) *InProgress* *Success* *Error* *Error_TIMEOUT*	-
ErrorDetails	string (256)	-	Provides more detail when the *ScanStatus* is either *Error* or *Error_TIMEOUT*.	-
LastScanTime	dateTime	-	The time of the last UMTS system radio environment measurement.	-
MaxCellEntries	unsignedInt	-	The maximum number of entries available in the *.REM.WCDMAFDD.Cell.{i}.* table.	-
CellNumberOfEntries	unsignedInt	-	The number entries in the *.REM.WCDMAFDD.Cell.{i}.* table..	-
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.	object	-	Table indicating the components of the discovered cells.	-
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.RF.	object	-	Table indicating the RF aspect of the discovered cells.	-
UARFCNDL	unsignedInt [0:16383]	-	The UTRA Absolute Radio Frequency Channel Number (UARFCN) in the DL direction of an FDD mode cell. 3GPP-TS.25.433 [21]	-
CPICHRSCP	int[-120:-25]	-	Received signal level in *dBm* of the CPICH channel. (Ref. 3GPP TS 25.133)	-

Name	Type	Write	Description	Object Default
CPICHEcNo	int[-48:0]	-	Measured EcNo. (energy per chip to interference power density) in *dB* received in the downlink pilot channel. Actual values of the range are -24.0 *dB* to 0.0 *dB* in steps of 0.5 *dB*. The value of *CPICHEcNo* divided by 2 yields the actual value of the range. 3GPP-TS.25.133 [15] Section 9.1.2.3	-
RSSI	int[-100:-25]	-	This measurement is for Inter-frequency handover evaluation, measured in total *dBm* in the band. 3GPP-TS.25.133 [15] Section9.1.3	-
PrimaryScramblingCode	unsignedInt [0:511]	-	Primary scrambling code.	-
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.BCCH.	object	-	Table containing the system information broadcast in the BCCH logical channel.	-
PLMNType	string	-	Type of Public Land Mobile Network (PLMN). Enumeration of: *GSM-MAP* *ANSI-41*	-
PLMNID	string (6)	-	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of *PLMNID* is 5.	-
LAC	unsignedInt [0:65535]	-	Location Area Code (LAC) as defined in SIB 1 3GPP-TS.25.331 [18]. The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the LAI (Location Area ID) 3GPP-TS.23.003 [8].	-
RAC	unsignedInt [0:255]	-	Routing Area Code (RAC) as defined in SIB 1 3GPP-TS.25.331 [18]. The concatenation of PLMN ID (MCC+MNC), LAC, and RAC uniquely identifies the RAI (Routing Area ID) 3GPP-TS.23.003 [8].	-
CellID	unsignedInt [:268435455]	-	Cell Identity as defined in SIB3 3GPP-TS.25.331 [18] Section10.3.2.2. 3GPP-TS.24.008 [13]	-
PCPICHTxPower	int[-10:50]	-	Primary Common Pilot Channel (CPICH) power level on SIB 5/6 3GPP-TS.25.331 [18] Section10.3.6.55.	-
CSGIndicator	boolean	-	The CSG-indicator Information Element (IE) in the Master Information Block reflects the access mode of the CSG cell. It is hence dependent on the value of *.AccessMgmt.AccessMode*. If *true* the CSG-indicator IE is present, reflecting closed access to the CSG cell. If *false* the CSG-indicator IE is absent, reflecting the access mode as “not a closed-access”. 3GPP-TS.25.331 [18] Section 10.2.48.8.1	-

Name	Type	Write	Description	Object Default
CSGID	unsignedInt [:134217727]	-	Defines the Closed Subscriber Group of the Access Control List. FAP broadcasts this CSG ID in SIB3 3GPP-TS.25.331 [18] Section10.3.2.8 depending on the AccessMode.	-
UARFCNDLList	string (128)	-	Comma-separated list (maximum length 128) of unsigned integers (range 0 to 16383). Each item is a UTRA Absolute Radio Frequency Channel Number (UARFCN} in the DL direction dedicated to the CSG cells. *UARFCNDLList* is broadcast in SIB 11bis 3GPP-TS.25.331 [18] Section 10.2.48.8.14a. The corresponding UTRA Absolute Radio Frequency Channel Number (UARFCN} in the UL direction is derived based on the fixed offset applicable for the frequency band.	-
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.BCCH.CSGPSCSplitInfo.	object	-	This object contains parameters relating to the Primary Scambling Code (PSC) split information for the CSG. Defined in SIB3/11bis 3GPP-TS.25.331 [18] Section 10.3.2.8 and 10.3.2.9.	-
StartPSCRange1Coefficient	unsignedInt [0:63]	-	The value of this Information Element (IE) multiplied by 8 specifies the start PSC value of the first PSC range as specified in 3GPP-TS.25.331 [18] Section 8.6.2.4.	-
NumberOfPSCs	string	-	This Information Element (IE) specifies the number of PSCs reserved for CSG cells in each PSC range. Enumeration of: *5* *10* *15* *20* *30* *40* *50* *64* *80* *120* *160* *256* *alltherest* *spare3* *spare2* *spare1*	-
PSCRange2Offset	unsignedInt [0:63]	-	If this Information Element (IE) is included, the UE shall calculate the second PSC range as specified in 3GPP-TS.25.331 [18] Section 8.6.2.4. If this Information Element (IE) is not included, the UE shall consider the second PSC range to be not present.	-

Name	Type	Write	Description	Object Default
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.BCCH.ReferencePosition.	object	-	This object defines parameters related to the surface point of the ellipsoid. 3GPP-TS.23.032 [9] Section 5 It is characterized by the co-ordinates of an ellipsoid point with altitude, distances, and an angle of orientation. This information is used to refer to a point on the Earth's surface, or close to the Earth's surface, with the same longitude and latitude.	-
Latitude	int[-90000000:90000000]	-	This parameter specifies the latitude of the device's position in degrees, multiplied by 1 million. The positive value signifies the direction, north of the equator. The negative value signifies the direction, south of the equator. Range is from: 90°00.00' South (-90,000,000) to 90°00.00' North (90,000,000). Example: A latitude of 13°19.43' N would be represented as 13,323,833, derived as (13*1,000,000)+((19.43*1,000,000)/60). Latitude of 50°0.00' S would be represented as value -50,000,000. If 0 then SIB15 is not detected in the specific cell.	-
Longitude	int[-180000000:180000000]	-	This parameter specifies the longitude of the device's position in degrees, multiplied by 1 million. The positive value signifies the direction, east of the prime meridian. The negative value signifies the direction, west of the prime meridian. Range is from: 180°00.00' West (-180,000,000) to 180°00.00' East (180,000,000). Example: A longitude of 13°19.43' E would be represented as 13,323,833, derived as (13*1,000,000)+((19.43*1,000,000)/60). A longitude of 50°0'0'' W would be represented as value -50,000,000. If 0 then SIB15 is not detected in the specific cell.	-
UncertaintySemiMajor	unsignedInt[0:127]	-	The uncertainty r is derived from the "uncertainty code" k by r = 10 x (1.1 <power> (k-1)) 3GPP-TS.23.032 [9] Section6.2	-
UncertaintySemiMinor	unsignedInt[0:127]	-	The uncertainty r is derived from the "uncertainty code" k by r = 10 x (1.1 <power> (k-1)) 3GPP-TS.23.032 [9] Section6.2	-
OrientationOfMajorAxis	unsignedInt[0:89]	-	The Information Element (IE) value 'N' is derived by this formula: 2N <= a < 2(N+1) Where 'a' is the orientation in degrees (0..179).	-
Confidence	unsignedInt[0:100]	-	The degree of confidence in the ellipsoid's points expressed in *percent*.	-
.FAPService.{i}.REM.GSM.	object	-	This object contains parameters relating to GSM REM capabilities.	-

Name	Type	Write	Description	Object Default
InServiceHandling	string	W	FAP REM behavior with respect to ongoing active connections. Enumeration of: *Immediate* (Immediately perform REM, even if have active connections or idle camping UE that may be disrupted.) *Delayed* (Wait to initiate REM until no CS bearers or PS bearers of streaming or higher QoS class are assigned.)	-
ScanOnBoot	boolean	W	Enables or disables Radio Environment Measurement during the FAP start up.	-
ScanPeriodically	boolean	W	Enable Periodic Radio Environment Measurement on all enabled RAT.	-
PeriodicInterval	unsignedInt	W	When *ScanPeriodically* is *true*, this value indicates the interval in *seconds* which REM is performed while the FAP service is enabled.	-
PeriodicTime	dateTime	W	An absolute time reference in UTC to determine when the CPE will initiate the periodic REM. Each REM MUST occur at (or as soon as possible after) this reference time plus or minus an integer multiple of the *PeriodicInterval*. *PeriodicTime* is used only to set the "phase" of the REM. The actual value of *PeriodicTime* can be arbitrarily far into the past or future. For example, if *PeriodicInterval* is 86400 (a day) and if *PeriodicTime* is set to UTC midnight on some day (in the past, present, or future) then periodic REMs will occur every day at UTC midnight. These MUST begin on the very next midnight, even if *PeriodicTime* refers to a day in the future. The Unknown Time value defined in TR-106a2 [4] Section 3.2 indicates that no particular time reference is specified. That is, the CPE MAY locally choose the time reference, and needs only to adhere to the specified PeriodicInformInterval. If absolute time is not available to the CPE, its periodic REM behavior MUST be the same as if *PeriodicTime* parameter was set to the Unknown Time value.	-

Name	Type	Write	Description	Object Default
REMPLMNList	string	W	Comma-separated list of strings (maximum item length 6). Each item is a PLMNID. PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of the PLMNID is 5. If an empty string no specific PLMN ID is provided, meaning that the FAP is required to report all available PLMN IDs. If a list is provided, the FAP is expected to limit the REM measurement to the PLMN(s) specified in this list only and ignore others even if they are detected.	-
REMBandList	string	W	Comma-separated list of strings. Each item is a GSM Band to measure. Each list item is an enumeration of: *T-GSM380* *T-GSM410* *GSM450* *GSM480* *GSM710* *GSM750* *T-GSM810* *GSM850* *P-GSM900* *E-GSM900* *R-GSM900* *T-GSM900* *DCS1800* *PCS1900* If an empty string then no specific GSM band is provided, meaning that the FAP MUST scan all bands. If a list is provided, the FAP is expected to limit the REM measurement to the band(s) specified in this list only and ignore others even if they are detected.	-
ARFCNList	string (64)	W	Comma-separated list (maximum length 64) of strings. Each item is a GSM ARFCN to measure. If an empty string then no specific ARFCN is provided, meaning that the FAP is required to scan all ARFCNs. If a list is provided, the FAP is expected to limit the REM measurement to the ARFCN(s) specified in this list only and ignore others even if they are detected.	-
ScanTimeout	unsignedInt	W	Specifies the time-out value in *seconds*, measured from the start of the REM scan, before the REM scan will time out.	-

Name	Type	Write	Description	Object Default
ScanStatus	string	-	Indicates the current status of this scan. Enumeration of: *Indeterminate* (The scan has not been executed and there are no valid scan results available) *InProgress* *Success* *Error* *Error_TIMEOUT*	-
ErrorDetails	string (256)	-	Provides more detail when the *ScanStatus* is either *Error* or *Error_TIMEOUT*.	-
LastScanTime	dateTime	-	The time of the last GSM radio environment measurement.	-
MaxCellEntries	unsignedInt	-	The maximum number of entries allowed in the *.REM.GSM.Cell.{i}.* table.	-
CellNumberOfEntries	unsignedInt	-	The number of entries in the *.REM.GSM.Cell.{i}.* table.	-
.FAPService.{i}.REM.GSM.Cell.{i}.	object	-	Table indicating the components of the discovered cells. At most one entry in this table can exist with the same values for *ARFCN* and *BSIC*.	-
BandIndicator	string	-	Indicates how to interpret the BCCH ARFCN. Enumeration of: *GSM 850* *GSM 900* *DCS 1800* *PCS 1900*	-
ARFCN	unsignedInt [0:1023]	-	Absolute Radio Frequency Channel Number (ARFCN) 3GPP-TS.05.05 [6].	-
BSIC	unsignedInt [0:63]	-	Base Station Identity Code 3GPP-TS.03.03 [5].	-
PLMNID	string (6)	-	PLMN ID consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) 3GPP-TS.23.003 [8], 3GPP-TS.24.008 [13]. Mobile Country Code consists of three digits and uniquely identifies the country of domicile of the subscriber. Mobile Network Code consists of two or three digits and identifies the Home PLMN within a country. For a 2-digit MNC the total string length of the PLMNID is 5.	-
LAC	unsignedInt [1:65535]	-	Location Area Code (LAC) as defined in SIB1 3GPP-TS.25.331 [18]. The concatenation of PLMN ID (MCC+MNC) and LAC uniquely identifies the LAI (Location Area ID) 3GPP-TS.23.003 [8].	-
RAC	unsignedInt [:255]	-	Routing Area Code (RAC) consists of up to 3 numerical characters. The concatenation of PLMN ID (MCC+MNC), LAC, and RAC uniquely identifies the Routing Area ID (RAI). 3GPP-TS.23.003 [8] Section 4.2 3GPP-TS.25.413 [20] Section 9.2.3.7	-
CI	unsignedInt [:63999]	-	Cell Identity. 3GPP-TS.25.331 [18] Section 10.3.2.2	-

Name	Type	Write	Description	Object Default
RSSI	int[-110:48]	-	Received signal level in *dBm* of the BCCH carrier.	-
.FAPService.{i}.GPS.	object	-	This object contains the parameters relating to the GPS scan.	-
ScanOnBoot	boolean	W	Enables or disables GPS scans during the FAP start up.	-
ScanPeriodically	boolean	W	Enables or disables periodic GPS scans.	-
PeriodicInterval	unsignedInt	W	When *ScanPeriodically* is *true*, this value indicates the interval in *seconds* which GPS scan is performed while the FAP service is enabled.	-
PeriodicTime	dateTime	W	An absolute time reference in UTC to determine when the CPE will initiate the periodic GPS scan. Each GPS scan MUST occur at (or as soon as possible after) this reference time plus or minus an integer multiple of the *PeriodicInterval*. *PeriodicTime* is used only to set the "phase" of the GPS scan. The actual value of *PeriodicTime* can be arbitrarily far into the past or future. For example, if *PeriodicInterval* is 86400 (a day) and if *PeriodicTime* is set to UTC midnight on some day (in the past, present, or future) then periodic GPS scans will occur every day at UTC midnight. These MUST begin on the very next midnight, even if *PeriodicTime* refers to a day in the future. The Unknown Time value defined in TR-106a2 [4] Section 3.2 indicates that no particular time reference is specified. That is, the CPE MAY locally choose the time reference, and needs only to adhere to the specified PeriodicInformInterval. If absolute time is not available to the CPE, its periodic GPS scan behavior MUST be the same as if *PeriodicTime* parameter was set to the Unknown Time value.	-
ContinuousGPS	boolean	W	Whether or not the FAP SHOULD maintain a continuous GPS lock (e.g. as a frequency stability source).	-
ScanTimeout	unsignedInt	W	Specifies the time-out value in *seconds* since the test started after which the test will time out. A timed out test is to be reported as *Error_TIMEOUT* with *ErrorDetails* indicating "Timed out".	-
ScanStatus	string	-	Indicates the current status of this scan. Enumeration of: *Indeterminate* (The scan has not been executed and there are no valid scan results available) *InProgress* *Success* *Error* *Error_TIMEOUT*	-

Name	Type	Write	Description	Object Default
ErrorDetails	string (256)	-	Provides more detail when the *ScanStatus* is either *Error* or *Error_TIMEOUT*.	-
LastScanTime	dateTime	-	The time of the last GPS scan.	-
LastSuccessfulScanTime	dateTime	-	Specifies the date and time, when the GPS scan last completed successfully. This value is retained across reboot. The values for LockedLatitude, LockedLongitute and NumberOfSattelites correspond to this time. If a scan has never succeeded before, the value will be the Unknown Time value, as defined in TR-106a2 [4] Section 3.2.	-
LockedLatitude	int[-90000000:90000000]	-	This parameter specifies the actual location of the FAP, returned by the GPS Diagnostics Test. This parameter specifies the latitude of the device's position in degrees, multiplied by 1 million. The positive value signifies the direction, north of the equator. The negative value signifies the direction, south of the equator. Range is from: 90°00.00' South (-90,000,000) to 90°00.00' North (90,000,000). Example: A latitude of 13°19.43' N would be represented as 13,323,833, derived as (13*1,000,000)+((19.43*1,000,000)/60). Latitude of 50°0.00' S would be represented as value -50,000,000. This value is retained across reboots and is only reset after another scan completes successfully. If a scan has never succeeded before, the value 0 is reported.	-
LockedLongitude	int[-180000000:180000000]	-	This parameter specifies the actual location of the FAP, returned by the GPS Diagnostics Test. This parameter specifies the longitude of the device's position in degrees, multiplied by 1 million. The positive value signifies the direction, east of the prime meridian. The negative value signifies the direction, west of the prime meridian. Range is from: 180°00.00' West (-180,000,000) to 180°00.00' East (180,000,000). Example: A longitude of 13°19.43' E would be represented as 13,323,833, derived as (13*1,000,000)+((19.43*1,000,000)/60). A longitude of 50°0'0'' W would be represented as value -50,000,000. This value is retained across reboots and is only reset after another scan completes successfully. If a scan has never succeeded before, the value 0 is reported.	-
NumberOfSatellites	unsignedInt	-	The number of satellites that were locked during the test execution. The greater the number of satellites the better the precision of the results. This value is retained across reboots and is only reset after another scan completes successfully. If a scan has never succeeded before, the value 0 is reported.	-
.FAPService.{i}.FaultMgmt.	object	-	This object contains parameters relating to Fault/Alarm Management.	-

Name	Type	Write	Description	Object Default
SupportedAlarmNumberOfEntries	unsignedInt	-	The number of entries in the *.FaultMgmt.SupportedAlarm.{i}.* table.	-
MaxCurrentAlarmEntries	unsignedInt	-	The maximum number of entries allowed in the *.FaultMgmt.CurrentAlarm.{i}.* table.	-
CurrentAlarmNumberOfEntries	unsignedInt	-	The number of entries in the *.FaultMgmt.CurrentAlarm.{i}.* table.	-
HistoryEventNumberOfEntries	unsignedInt	-	The number of entries in the *.FaultMgmt.HistoryEvent.{i}.* table.	-
ExpeditedEventNumberOfEntries	unsignedInt	-	The number of entries in the *.FaultMgmt.ExpeditedEvent.{i}.* table.	-
QueuedEventNumberOfEntries	unsignedInt	-	The number of entries in the *.FaultMgmt.QueuedEvent.{i}.* table.	-
.FAPService.{i}.FaultMgmt.SupportedAlarm.{i}.	object	-	Supported Alarm Entries which can be raised by the FAP. The instance numbers for this table SHOULD be maintained across firmware upgrades of the device. At most one entry in this table can exist with all the same values for *EventType*, *ProbableCause*, *SpecificProblem* and *PerceivedSeverity*.	-
EventType	string (64)	-	Indicates the type of FAP event. See 3GPP-TS.32.111-5 [24] for information on pre-defined alarm types.	-
ProbableCause	string (64)	-	Qualifies the alarm and provides further information than *EventType*. See 3GPP-TS.32.111-5 [24] for information on pre-defined probable causes.	-
SpecificProblem	string (128)	-	Provides further qualification on the alarm beyond *EventType* and *ProbableCause*. This is not 3GPP standards based and is vendor defined. This will be an empty string if the FAP doesn't support unique indexing of the table using *SpecificProblem*. The string can be set to "*" to indicate the default case if only a subset of *SpecificProblem* are to be contained within the table.	-

Name	Type	Write	Description	Object Default
PerceivedSeverity	string	-	Indicates the relative level of urgency for operator attention, see ITU-X.733 [33]. Enumeration of: (an empty string) * *Cleared* *Critical* *Major* *Minor* *Warning* *Indeterminate* (OPTIONAL) Although *Indeterminate* is defined in ITU-X.733 [33] it SHOULD NOT be used by the FAP as a *PerceivedSeverity*. This will be an empty string if the FAP doesn't support unique indexing of the table using *PerceivedSeverity*. The string can be set to "*" to indicate the default case if only a subset of *PerceivedSeverity* are to be contained within the table.	-
ReportingMechanism	string	W	Indicates the reporting mechanism setting of the alarm. Enumeration of: *0 Expedited* (The FAP inserts the alarm into the *.FaultMgmt.ExpeditedEvent.{i}.* table and the *.FaultMgmt.HistoryEvent.{i}.* table.) *1 Queued* (The FAP inserts the alarm into the *.FaultMgmt.QueuedEvent.{i}.* table and the *.FaultMgmt.HistoryEvent.{i}.* table.) *2 Logged* (The FAP inserts the alarm into the *.FaultMgmt.HistoryEvent.{i}.* table.) *3 Disabled* (The FAP ignores the alarm.)	-
.FAPService.{i}.FaultMgmt.CurrentAlarm.{i}.	object	-	Contains all currently active alarms (whose *.FaultMgmt.SupportedAlarm.{i}.PerceivedSeverity* is not *Cleared*). New raised alarms result in a new entry in this table being added, any changes to the alarm as a result of an update event are updated in the existing table entry, and a clear event raised against an alarm results in the alarm being removed from this table. Active alarms at the time of a power failure or reboot are removed from this table. At most one entry in this table can exist with a given value for *AlarmIdentifier*, or with all the same values for *EventType*, *ProbableCause* and *SpecificProblem*.	-
AlarmIdentifier	string (64)	-	Identifies one Alarm Entry in the Alarm List. This value MUST be uniquely allocated by the FAP to the alarm instance during the lifetime of the individual alarm.	-
AlarmRaisedTime	dateTime	-	Indicates the date and time when the alarm was first raised by the FAP.	-
AlarmChangedTime	dateTime	-	Indicates the date and time when the alarm was last changed by the FAP.	-

Name	Type	Write	Description	Object Default
ManagedObjectInstance	string (512)	-	Specifies the instance of the Informational Object Class in which the FAP alarm occurred by carrying the Distinguished Name (DN) of this object instance. This object may or may not be identical to the object instance actually emitting the notification to the ACS. The *.DNPrefix* should be pre-pended to the local DN to create the ManagedObjectInstance. Encode the Managed Objects representation in string format as defined in 3GPP-TS.32.300 [25].	-
EventType	string (64)	-	Indicates the type of FAP event. See 3GPP-TS.32.111-5 [24] for information on pre-defined alarm types.	-
ProbableCause	string (64)	-	Qualifies the alarm and provides further information than *EventType*. See 3GPP-TS.32.111-5 [24] for information on pre-defined probable causes.	-
SpecificProblem	string (128)	-	Provides further qualification on the alarm beyond *EventType* and *ProbableCause*. This is not 3GPP standards based and is vendor defined. This will be an empty string if the FAP doesn't support inclusion of this information.	-
PerceivedSeverity	string	-	Indicates the relative level of urgency for operator attention, see ITU-X.733 [33]. Enumeration of: *Critical* *Major* *Minor* *Warning* *Indeterminate* (OPTIONAL) Although *Indeterminate* is defined in ITU-X.733 [33] it SHOULD NOT be used by the FAP as a *PerceivedSeverity*.	-
AdditionalText	string (256)	-	This provides a textual string which is vendor defined. This will be an empty string if the FAP doesn't support inclusion of this information.	-
AdditionalInformation	string (256)	-	This contains additional information about the alarm and is vendor defined.	-
.FAPService.{i}.FaultMgmt.HistoryEvent.{i}.	object	-	Alarm events added or updated in *.FaultMgmt.CurrentAlarm.{i}.* are simultaneously entered into the this table. This table also contains alarm clearing events. Active alarms at the time of a power failure or reboot may not get an alarm clearing event. If maximum instance number *.FaultMgmt.HistoryEventNumberOfEntries* is reached, the next event overrides the object with instance number 1. Subsequent entries override objects at sequentially increasing instance numbers. This logic provides for automatic "rolling" of records. The data in this table is maintained across reboots. At most one entry in this table can exist with the same values for *EventTime* and *AlarmIdentifier*.	-

Name	Type	Write	Description	Object Default
EventTime	dateTime	-	Indicates the date and time when the alarm event occurs.	-
AlarmIdentifier	string (64)	-	Identifies one Alarm Entry in the Alarm List. This value MUST be uniquely allocated by the FAP to the alarm instance during the lifetime of the individual alarm.	-
NotificationType	string	-	Indicates the reason for the specific alarm notification event. Enumeration of: *NewAlarm* *ChangedAlarm* *ClearedAlarm*	-
ManagedObjectInstance	string (512)	-	Specifies the instance of the Informational Object Class in which the FAP alarm occurred by carrying the Distinguished Name (DN) of this object instance. This object may or may not be identical to the object instance actually emitting the notification to the ACS. The *.DNPrefix* should be pre-pended to the local DN to create the ManagedObjectInstance. Encode the Managed Objects representation in string format as defined in 3GPP-TS.32.300 [25].	-
EventType	string (64)	-	Indicates the type of FAP event. See 3GPP-TS.32.111-5 [24] for information on pre-defined alarm types.	-
ProbableCause	string (64)	-	Qualifies the alarm and provides further information than *EventType*. See 3GPP-TS.32.111-5 [24] for information on pre-defined probable causes.	-
SpecificProblem	string (128)	-	Provides further qualification on the alarm beyond *EventType* and *ProbableCause*. This is not 3GPP standards based and is vendor defined. This will be an empty string if the FAP doesn't support inclusion of this information.	-
PerceivedSeverity	string	-	Indicates the relative level of urgency for operator attention, see ITU-X.733 [33]. Enumeration of: *Cleared* *Critical* *Major* *Minor* *Warning* *Indeterminate* (OPTIONAL) Although *Indeterminate* is defined in ITU-X.733 [33] it SHOULD NOT be used by the FAP as a *PerceivedSeverity*.	-
AdditionalText	string (256)	-	This provides a textual string which is vendor defined. This will be an empty string if the FAP doesn't support inclusion of this information.	-
AdditionalInformation	string (256)	-	This contains additional information about the alarm and is vendor defined.	-

Name	Type	Write	Description	Object Default
.FAPService.{i}.FaultMgmt.ExpeditedEvent.{i}.	object	-	Alarm events added or updated in *.FaultMgmt.CurrentAlarm.{i}.* are simultaneously entered into the this table if their corresponding entry in *.FaultMgmt.SupportedAlarm.{i}.* has *.FaultMgmt.SupportedAlarm.{i}.ReportingMechanism* set to *0 Expedited*. This table also contains alarm clearing events. This object has a fixed number of entries with instance numbers from 1 to *.FaultMgmt.HistoryEventNumberOfEntries*. Initially the table starts with all instances having *EventTime* set to the Unknown Time value, as defined in TR-106a2 [4]. If maximum instance number *.FaultMgmt.ExpeditedEventNumberOfEntries* is reached, the next event overrides the object with instance number 1. Subsequent entries override objects at sequentially increasing instance numbers. This logic provides for automatic "rolling" of records. When a new alarm replaces an existing alarm, then all parameter values for that instance are considered as changed for the purposes of value change notifications to the ACS (even if their new values are identical to those of the prior alarm).	-
EventTime	dateTime	-	Indicates the date and time when the alarm event occurs. For an unpopulated entry, the value is the Unknown Time as defined in TR-106a2 [4].	-
AlarmIdentifier	string (64)	-	Identifies one Alarm Entry in the Alarm List. This value MUST be uniquely allocated by the FAP to the alarm instance during the lifetime of the individual alarm. For an unpopulated entry, the value is an empty string.	-
NotificationType	string	-	Indicates the reason for the specific alarm notification event. Enumeration of: *NewAlarm* *ChangedAlarm* *ClearedAlarm*	-
ManagedObjectInstance	string (512)	-	Specifies the instance of the Informational Object Class in which the FAP alarm occurred by carrying the Distinguished Name (DN) of this object instance. This object may or may not be identical to the object instance actually emitting the notification to the ACS. The *.DNPrefix* should be pre-pended to the local DN to create the ManagedObjectInstance. Encode the Managed Objects representation in string format as defined in 3GPP-TS.32.300 [25].	-
EventType	string (64)	-	Indicates the type of FAP event. See 3GPP-TS.32.111-5 [24] for information on pre-defined alarm types.	-

Name	Type	Write	Description	Object Default
ProbableCause	string (64)	-	Qualifies the alarm and provides further information than *EventType*. See 3GPP-TS.32.111-5 [24] for information on pre-defined probable causes.	-
SpecificProblem	string (128)	-	Provides further qualification on the alarm beyond *EventType* and *ProbableCause*. This is not 3GPP standards based and is vendor defined. This will be an empty string if the FAP doesn't support inclusion of this information.	-
PerceivedSeverity	string	-	Indicates the relative level of urgency for operator attention, see ITU-X.733 [33]. Enumeration of: *Cleared* *Critical* *Major* *Minor* *Warning* *Indeterminate* (OPTIONAL) Although *Indeterminate* is defined in ITU-X.733 [33] it SHOULD NOT be used by the FAP as a *PerceivedSeverity*.	-
AdditionalText	string (256)	-	This provides a textual string which is vendor defined. This will be an empty string if the FAP doesn't support inclusion of this information.	-
AdditionalInformation	string (256)	-	This contains additional information about the alarm and is vendor defined.	-
.FAPService.{i}.FaultMgmt.QueuedEvent.{i}.	object	-	Alarm events added or updated in *.FaultMgmt.CurrentAlarm.{i}.* are simultaneously entered into the this table if their corresponding entry in *.FaultMgmt.SupportedAlarm.{i}.* has *.FaultMgmt.SupportedAlarm.{i}.ReportingMechanism* set to *1 Queued*. This table also contains alarm clearing events. This object has a fixed number of entries with instance numbers from 1 to *.FaultMgmt.HistoryEventNumberOfEntries*. Initially the table starts with all instances having *EventTime* set to the Unknown Time value, as defined in TR-106a2 [4]. If maximum instance number *.FaultMgmt.QueuedEventNumberOfEntries* is reached, the next event overrides the object with instance number 1. Subsequent entries override objects at sequentially increasing instance numbers. This logic provides for automatic "rolling" of records. When a new alarm replaces an existing alarm, then all parameter values for that instance are considered as changed for the purposes of value change notifications to the ACS (even if their new values are identical to those of the prior alarm).	-

Name	Type	Write	Description	Object Default
EventTime	dateTime	-	Indicates the date and time when the alarm event occurs. For an unpopulated entry, the value is the Unknown Time as defined in TR-106a2 [4].	-
AlarmIdentifier	string (64)	-	Identifies one Alarm Entry in the Alarm List. This value MUST be uniquely allocated by the FAP to the alarm instance during the lifetime of the individual alarm. For an unpopulated entry, the value is an empty string.	-
NotificationType	string	-	Indicates the reason for the specific alarm notification event. Enumeration of: *NewAlarm* *ChangedAlarm* *ClearedAlarm*	-
ManagedObjectInstance	string (512)	-	Specifies the instance of the Informational Object Class in which the FAP alarm occurred by carrying the Distinguished Name (DN) of this object instance. This object may or may not be identical to the object instance actually emitting the notification to the ACS. The *.DNPrefix* should be pre-pended to the local DN to create the ManagedObjectInstance. Encode the Managed Objects representation in string format as defined in 3GPP-TS.32.300 [25].	-
EventType	string (64)	-	Indicates the type of FAP event. See 3GPP-TS.32.111-5 [24] for information on pre-defined alarm types.	-
ProbableCause	string (64)	-	Qualifies the alarm and provides further information than *EventType*. See 3GPP-TS.32.111-5 [24] for information on pre-defined probable causes.	-
SpecificProblem	string (128)	-	Provides further qualification on the alarm beyond *EventType* and *ProbableCause*. This is not 3GPP standards based and is vendor defined. This will be an empty string if the FAP doesn't support inclusion of this information.	-
PerceivedSeverity	string	-	Indicates the relative level of urgency for operator attention, see ITU-X.733 [33]. Enumeration of: *Cleared* *Critical* *Major* *Minor* *Warning* *Indeterminate* (OPTIONAL) Although *Indeterminate* is defined in ITU-X.733 [33] it SHOULD NOT be used by the FAP as a *PerceivedSeverity*.	-
AdditionalText	string (256)	-	This provides a textual string which is vendor defined. This will be an empty string if the FAP doesn't support inclusion of this information.	-

Name	Type	Write	Description	Object Default
AdditionalInformation	string (256)	-	This contains additional information about the alarm and is vendor defined.	-
.FAPService.{i}.PerfMgmt.	object	-	This object contains parameters relating to Performance Management.	-
.FAPService.{i}.PerfMgmt. FileMgmt.	object	-	This object contains parameters relating to File Management for uploading of Performance Files to a designated File Server.	-
PeriodicUploadEnable	boolean	W	Enables or disables the ability to send FAP information periodically to a designated File Server.	-
URL	string (256)	W	URL specifying the destination file location. HTTP and HTTPS transports MUST be supported. Other optional transports MAY be supported. This argument specifies only the destination file location, and does not indicate in any way the name or location of the local file to be uploaded.	-
Username	string (256)	W	Username to be used by the FAP to authenticate with the file server. This string is set to an empty string if no authentication is required.	-
Password	string (256)	W	Password to be used by the FAP to authenticate with the file server. This string is set to an empty string if no authentication is required. When read, this parameter returns an empty string, regardless of the actual value.	-
PeriodicUploadInterval	unsignedInt [1:]	W	The duration in *seconds* of the interval for which the FAP MUST create an Performance File and attempt to upload the file to *URL* if *PeriodicUploadEnable* is *true*.	-

Name	Type	Write	Description	Object Default
PeriodicUploadTime	dateTime	W	An absolute time reference in UTC to determine when the FAP will initiate the periodic file upload. Each file upload MUST occur at this reference time plus or minus an integer multiple of the *PeriodicUploadInterval*. *PeriodicUploadTime* is used only to set the "phase" of the periodic uploads. The actual value of *PeriodicUploadTime* can be arbitrarily far into the past or future. For example, if *PeriodicUploadInterval* is 86400 (a day) and if *PeriodicUploadTime* is set to UTC midnight on some day (in the past, present, or future) then periodic file uploads will occur every day at UTC midnight. These MUST begin on the very next midnight, even if *PeriodicUploadTime* refers to a day in the future. The Unknown Time value as defined in TR-106a2 [4] indicates that no particular time reference is specified. That is, the FAP MAY locally choose the time reference, and is required only to adhere to the specified *PeriodicUploadInterval*. If absolute time is not available to the FAP, its periodic file upload behavior MUST be the same as if the *PeriodicUploadTime* parameter was set to the Unknown Time value.	-

4.2 Forced Inform Parameters

All of the parameters listed in Table 2 that are present in the data model implementation are REQUIRED on *every* Inform.

Table 2 – Forced Inform Parameters

Parameter
.FAPService.{i}.FAPControl.OpState
.FAPService.{i}.FAPControl.RFTxStatus

4.3 Default Active Notification Parameters

Active Notification MUST be enabled by default for all of the parameters listed in Table 3 that are present in the data model implementation. The Notification attribute for each of these parameters MUST be reset to this default state whenever the CPE sends an Inform message indicating the "0 BOOTSTRAP" Event code.

Table 3 – Default Active Notification Parameters

Parameter
.FAPService.{i}.FAPControl.OpState
.FAPService.{i}.FAPControl.RFTxStatus
.FAPService.{i}.Transport.Tunnel.IKESA.{i}.IPAddress
.FAPService.{i}.REM.WCDMAFDD.LastScanTime
.FAPService.{i}.REM.GSM.LastScanTime
.FAPService.{i}.GPS.LastScanTime

4.4 Notification Requirements

CPE MUST support Active Notification (see TR-069 [2]) for all parameters defined in the Common Object definitions for the *Service* Object (section x.y) with the exception of those parameters listed in Table X.

CPE MUST support Passive Notification (see TR-069 [2]) for all parameters defined in the UMTS Femto data model, with no exceptions.

Table 4 – Parameters for which Active Notification MAY be defnied by FAP

Parameter
.FAPService.{i}.AccessMgmt.
AccessMode
NonCSGUEAccessDecision
CSGMembershipDeterminedLocally
.FAPService.{i}.CellConfig.UMTS.RAB.
RABSuccEstabCS
RABFailEstabCS
RABSuccEstabPS
RABFailEstabPS
RABSuccModCS
RABFailModCS
RABSuccModPS
RABFailModPS
RABSuccRelCS
RABFailRelCS
RABSuccRelPS
RABFailRelPS
RABCSSetupTimeMean
RABCSSetupTimeMax
RABPSSetupTimeMean
RABPSSetupTimeMax
FailHO
SuccHO
.FAPService.{i}.Transport.SCTP.
HBInterval
MaxAssociationRetransmits
MaxInitRetransmits
MaxPathRetransmits
RTOInitial
RTOMax
RTOMin
ValCookieLife
OutOfBlues
ChecksumErrors
OutCtrlChunks
OutOrderChunks
OutUnorderChunks
InCtrlChunks

InOrderChunks
InUnorderChunks
FragUsrMsgs
ReasmUsrMsgs
OutSCTPPacks
InSCTPPacks
.FAPService.{i}.Transport.SCTP.Assoc.{i}.
PrimaryPeerAddress
LocalPort
InStreams
OutStreams
StartTime
Discontinuity
.FAPService.{i}.Transport.RealTime.
SentPackets
RcvPackets
BytesSent
BytesReceived
.FAPService.{i}.Transport.RealTime.Perf.
LostRcvPackets
LostFarEndPackets
Overruns
Underruns
MeanRTT
MaxRTT
MeanReceiveJitter
MaxReceiveJitter
MeanFarEndJitter
MaxFarEndJitter
.FAPService.{i}.Transport.Packet.
EchoInterval
SentPackets
RcvPackets
.FAPService.{i}.Transport.Tunnel.IKESA.{i}.
IntegrityErrors
OtherErrors
AuthErrors
.FAPService.{i}.Transport.Tunnel.ChildSA.{i}.
IntegrityErrors
ReplayErrors
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.BCCH.ReferencePosition.
Latitude
Longitude
.FAPService.{i}.GPS.
LastSuccessfulScanTime
LockedLatitude
LockedLongitude
NumberOfSatellites

5 Profile Definitions

5.1 Notation

The following abbreviations are used to specify profile requirements:

Abbreviation	Description
R	Read support is REQUIRED.
W	Both Read and Write support is REQUIRED.
P	The object is REQUIRED to be present.
C	Creation and deletion of instances of the object via AddObject and DeleteObject is REQUIRED.
A	Creation of instances of the object via AddObject is REQUIRED, but deletion is not required.
D	Deletion of instances of the object via DeleteObject is REQUIRED, but creation is not required.

5.2 Baseline Profile

Table 5 defines the Baseline:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1.0.

Table 5 – Baseline:1 Profile Definition for FAPService:1

Name	Requirement
FAPServiceNumberOfEntries	R
.FAPService.{i}.	P
DeviceType	R
DNPrefix	W
.FAPService.{i}.Capabilities.	P
GPSEquipped	R
MaxTxPower	R
SupportedSystems	R
MaxChildSAPerIKE	R
MaxIKESessions	R
.FAPService.{i}.FAPControl.	P
OpState	R
AdminState	W
RFTxStatus	R

5.3 Profile

Table 6 defines the ACL:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 6 – ACL:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.AccessMgmt.	P
AccessMode	W
NonCSGUEAccessDecision	W
CSGMembershipDeterminedLocally	W
HNBIdentifier	W
HomeZoneName	W
MaxConcurrentCSGUsers	W
CSGID	W
AccessControlList	W
MaxMemberDetailEntries	R
MemberDetailNumberOfEntries	R
.FAPService.{i}.AccessMgmt.MemberDetail.{i}.	C
Enable	W
IMSI	W
MSISDN	W
MembershipExpires	W

5.4 LocalIPAccess Profile

Table 7 defines the LocalIPAccess:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 7 – LocalIPAccess:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.-{i}.-AccessMgmt.-LocalIPAccess.	P
Enable	W
MaxRulesEntries	R
RulesNumberOfEntries	R
.FAPService.-{i}.-AccessMgmt.-LocalIPAccess.-Rules.-{i}.	C
Enable	W
DestIPAddress	W
DestSubnetMask	W
Protocol	W
Action	W
Interface	W

5.5 REMWCDMAFDD Profile

Table 8 defines the REMWCDMAFDD:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 8 – REMWCDMAFDD:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.REM.	P
.FAPService.{i}.REM.WCDMAFDD.	P
InServiceHandling	R
ScanPeriodically	W
PeriodicInterval	W
PeriodicTime	W
REMPLMNList	W
REMBandList	W
UARFCNDLList	W
ScanTimeout	W
ScanStatus	R
ErrorDetails	R
LastScanTime	R
MaxCellEntries	R
CellNumberOfEntries	R
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.	P
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.RF.	P
UARFCNDL	R
CPICHRSCP	R
CPICHEcNo	R
RSSI	R
PrimaryScramblingCode	R
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.BCCH.	P
PLMNType	R
PLMNID	R
LAC	R
RAC	R
CellID	R
PCPICHTxPower	R
CSGIndicator	R
CSGID	R
UARFCNDLList	R
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.BCCH.CSGPSCSplitInfo.	P
StartPSCRange1Coefficient	R
NumberOfPSCs	R
PSCRange2Offset	R
.FAPService.{i}.REM.WCDMAFDD.Cell.{i}.BCCH.ReferencePosition.	P
Latitude	R
Longitude	R
Confidence	R

5.6 REMGSM Profile

Table 9 defines the REMGSM:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 9 – REMGSM:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.REM.	P
.FAPService.{i}.REM.GSM.	P
InServiceHandling	R
ScanPeriodically	W
PeriodicInterval	W
PeriodicTime	W
REMPLMNList	W
REMBandList	W
ARFCNList	W
ScanTimeout	W
ScanStatus	R
ErrorDetails	R
LastScanTime	R
MaxCellEntries	R
CellNumberOfEntries	R
.FAPService.{i}.REM.GSM.Cell.{i}.	P
BandIndicator	R
ARFCN	R
BSIC	R
PLMNID	R
LAC	R
RAC	R
CI	R
RSSI	R

5.7 GPS Profile

Table 10 defines the GPS:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 10 – GPS:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.GPS.	P
ScanOnBoot	W
ScanPeriodically	W
PeriodicInterval	W
PeriodicTime	W
ContinuousGPS	W
ScanTimeout	W
ScanStatus	R
ErrorDetails	R
LastScanTime	R
LastSuccessfulScanTime	R
LockedLatitude	R
LockedLongitude	R
NumberOfSatellites	R

5.8 TransportSCTP Profile

Table 11 defines the TransportSCTP:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 11 – TransportSCTP:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.Transport.SCTP.	P
Enable	W
HBInterval	W
MaxAssociationRetransmits	W
MaxInitRetransmits	W
MaxPathRetransmits	W
RTOInitial	W
RTOMax	W
RTOMin	W
ValCookieLife	W
OutOfBlues	R
ChecksumErrors	R
OutCtrlChunks	R
OutOrderChunks	R
OutUnorderChunks	R
InCtrlChunks	R
InOrderChunks	R
InUnorderChunks	R
FragUsrMsgs	R
ReasmUsrMsgs	R
OutSCTPPacks	R
InSCTPPacks	R
Discontinuity	R
AssocNumberOfEntries	R
.FAPService.{i}.Transport.SCTP.Assoc.{i}.	P
Status	R
PrimaryPeerAddress	R
LocalPort	R
InStreams	R
OutStreams	R
StartTime	R
Discontinuity	R

5.9 TransportRealTime Profile

Table 12 defines the TransportRealTime:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 12 – TransportRealTime:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.Transport.RealTime.	P
RTCPEnable	W
SentPackets	R
RcvPackets	R
BytesSent	R
BytesReceived	R
.FAPService.{i}.Transport.RealTime.Perf.	P
LostRcvPackets	R
LostFarEndPackets	R
Overruns	R
Underruns	R
MeanRTT	R
MaxRTT	R
MeanReceiveJitter	R
MaxReceiveJitter	R
MeanFarEndJitter	R
MaxFarEndJitter	R
.FAPService.{i}.Transport.Packet.	P
EchoInterval	W
SentPackets	R
RcvPackets	R

5.10 IPsecTunnel Profile

Table 13 defines the IPsecTunnel:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 13 – IPsecTunnel:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.Transport.Tunnel.	P
IKESANumberOfEntries	R
ChildSANumberOfEntries	R
VirtualInterfaceNumberOfEntries	R
MaxVirtualInterfaces	R
.FAPService.{i}.Transport.Tunnel.IKESA.{i}.	P
Status	R
PeerAddress	R
CreationTime	R
IPAddress	R
SubnetMask	R
.FAPService.{i}.Transport.Tunnel.ChildSA.{i}.	P
ParentID	R
SPI	R
DirectionOutbound	R
CreationTime	R
.FAPService.{i}.Transport.Tunnel.VirtualInterface.{i}.	P
Enable	W
CryptoProfile	W
DSCPMarkPolicy	W
.FAPService.{i}.Transport.Security.CryptoProfile.{i}.	C
Enable	W
AuthMethod	W
MaxChildSA	W
IKEEncrypt	W
IKEPRF	W
IKEIntegrity	W
IKEDH	W
ESPEncrypt	W
ESPIntegrity	W

5.11 UMTSBaseline Profile

Table 14 defines the UMTSBaseline:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is Umts:1

Table 14 – UMTSBaseline:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.Capabilities.UMTS.	P
DuplexMode	R
GSMRxSupported	R
HSDPASupported	R
MaxHSDPADataRateSupported	R
HSUPASupported	R
MaxHSUPADataRateSupported	R
MaxHSPDSCHsSupported	R
MaxHSSCCHsSupported	R
FDDBandsSupported	R
GSMRxBandsSupported	R
.FAPService.{i}.Capabilities.UMTS.SelfConfig.	P
UARFCNConfig	R
PrimaryScramblingCodeConfig	R
MaxFAPTxPowerConfig	R
PCPICHPowerConfig	R
MaxULTxPowerConfig	R
LACRACURAConfig	R
NeighborListConfig	R
CellReSelectionConfig	R
IntraFreqMeasConfig	R
InterFreqMeasConfig	R
InterRATMeasConfig	R
UEInternalMeasConfig	R
.FAPService.{i}.FAPControl.UMTS.Gateway.	P
SecGWServer1	W
SecGWServer2	W
SecGWServer3	W
FAPGWServer1	W
FAPGWServer2	W
FAPGWServer3	W
FAPGWPort	W
.FAPService.{i}.CellConfig.UMTS.RAB.	P
RABSuccEstabCS	R
RABFailEstabCS	R
RABSuccEstabPS	R
RABFailEstabPS	R
RABSuccModCS	R
RABFailModCS	R
RABSuccModPS	R
RABFailModPS	R

RABSuccRelCS	R
RABFailRelCS	R
RABSuccRelPS	R
RABFailRelPS	R
RABCSSetupTimeMean	R
RABCSSetupTimeMax	R
RABPSSetupTimeMean	R
RABPSSetupTimeMax	R
FailHO	R
SuccHO	R

5.12 UMTSSelfConfig Profile

Table 15 defines the UMTSSelfConfig:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is Umts:1

Table 15 – UMTSSelfConfig:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FAPControl.	P
SelfConfigEvents	W
.FAPService.{i}.FAPControl.UMTS.SelfConfig.	P
UARFCNSelfConfigEnable	W
PrimaryScramblingCodeSelfConfigEnable	W
MaxFAPTxPowerSelfConfigEnable	W
PCPICHPowerSelfConfigEnable	W
MaxULTxPowerSelfConfigEnable	W
LACRACURASelfConfigEnable	W
NeighborListSelfConfigEnable	W
CellReSelectionSelfConfigEnable	W
UEInternalMeasConfigEnable	W
.FAPService.{i}.CellConfig.UMTS.CN.	P
LACInUse	R
RACInUse	R
.FAPService.{i}.CellConfig.UMTS.RAN.	P
URAInUse	R
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.RF.	P
UARFCNDLInUse	R
UARFCNULInUse	R
PrimaryScramblingCodeInUse	R
MaxFAPTxPowerInUse	R
MaxULTxPowerInUse	R
PCPICHPowerInUse	R

5.13 UMTSSelfConfigNLInUseIntraFreqCell Profile

Table 16 defines the UMTSSelfConfigNLInUseIntraFreqCell:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is Umts:1

Table 16 – UMTSSelfConfigNLInUseIntraFreqCell:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FAPControl.UMTS.SelfConfig.	P
IntraFreqMeasSelfConfigEnable	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.	P
MaxIntraFreqCellEntries	R
IntraFreqCellNumberOfEntries	R
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.IntraFreqCell.{i}.	P
PLMNID	R
RNCID	R
CID	R
LAC	R
RAC	R
URA	R
PCPICHScramblingCode	R

5.14 UMTSSelfConfigNLInUseInterFreqCell Profile

Table 17 defines the UMTSSelfConfigNLInUseInterFreqCell:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is Umts:1

Table 17 – UMTSSelfConfigNLInUseInterFreqCell:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FAPControl.UMTS.SelfConfig.	P
InterFreqMeasSelfConfigEnable	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse.	P
MaxInterFreqCellEntries	R
InterFreqCellNumberOfEntries	R
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse. InterFreqCell.{i}.	P
PLMNID	R
RNCID	R
CID	R
LAC	R
RAC	R
URA	R
PCPICHScramblingCode	R

5.15 UMTSSelfConfigNLInUseInterRATCell Profile

Table 18 defines the UMTSSelfConfigNLInUseInterRATCell:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is Umts:1

Table 18 – UMTSSelfConfigNLInUseInterRATCell:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FAPControl.UMTS.SelfConfig.	P
InterRATMeasSelfConfigEnable	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse. InterRATCell.	P
MaxGSMEntries	R
GSMNumberOfEntries	R
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborListInUse. InterRATCell.GSM.{i}.	P
PLMNID	R
LAC	R
BSIC	R
CI	R
BandIndicator	R
BCCHARFCN	R

5.16 UMTSCellConfigBaseline Profile

Table 19 defines the UMTSCellConfigBaseline:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 19 – UMTSCellConfigBaseline:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.CellConfig.	P
.FAPService.{i}.CellConfig.UMTS.	P
.FAPService.{i}.CellConfig.UMTS.CN.	P
PLMNType	W
PLMNID	W
EquivPLMNID	W
SAC	W
LACRAC	W
.FAPService.{i}.CellConfig.UMTS.CN.CSDomain.	P
T3212	W
IMSIAttachDetachEnable	W
.FAPService.{i}.CellConfig.UMTS.CN.PSDomain.	P
NetworkModeOperationCombined	W
.FAPService.{i}.CellConfig.UMTS.RAN.	P
URAList	W
RNCID	W
CellID	W
TRatC	W
TRafC	W
NRafC	W
TigOR	W
TinTR	W
TDataFwd	W
TRelocPrep	W
TRelocOverall	W
.FAPService.{i}.CellConfig.UMTS.RAN.CSG.	P
CSGIndicator	R
UARFCNDLList	W
.FAPService.{i}.CellConfig.UMTS.RAN.CSG.CSGPSCSplitInfo.	P
StartPSCRange1Coefficient	W
NumberOfPSCs	W
PSCRange2Offset	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.	P
HSFlag	W
HSEnable	W
NumOfHSPDSCHs	W
NumOfHSSCCHs	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.RF.	P
UARFCNDL	W
UARFCNDLToProtect	W

PrimaryScramblingCode	W
MaxFAPTxPower	W
MaxULTxPower	W
PCPICHPower	W
PowerOffsetPilotDPDCH	W
FAPCoverageTarget	W
PSCHPower	W
SSCHPower	W
PICHPower	W
PCHPower	W
FACHPower	W
BCHPower	W
AICHPower	W
CTCHAllocationPeriod	W
CBSFrameOffset	W
MaxTTI	W

5.17 UMTSCellConfigAdvanced Profile

Table 20 defines the UMTSCellConfigAdvanced:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 20 – UMTSCellConfigAdvanced:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.CellSelection.	P
QualityMeasureCPICH	W
QqualMin	W
QqualMinOffset	W
QRxLevMin	W
DeltaQRxLevMin	W
QRxLevMinOffset	W
QHyst1s	W
QHyst2s	W
TReselections	W
SIntrasearch	W
SIntersearch	W
SSearchHCS	W
SSearchRAT	W
SHCSRAT	W
SLimitSearchRAT	W
NonHCSTCRMax	W
NonHCSNCR	W
NonHCSTCRMaxHyst	W
QHCS	W
UseOfHCS	W
HCSPrio	W
TCRMax	W
NCR	W
TCRMaxHyst	W
UETxPwrMaxRACH	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.RRCTimers.	P
T300	W
T301	W
T302	W
T304	W
T305	W
T307	W
T308	W
T309	W
T310	W
T311	W
T312	W
T313	W
T314	W
T315	W

T316	W
N300	W
N301	W
N302	W
N304	W
N310	W
N312	W
N313	W
N315	W
WaitTime	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.DRX.	P
DRXCycleLengthCoefficientCS	W
DRXCycleLengthCoefficientPS	W
UTRANDRXCycleLengthCoefficient	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.PowerControl.	P
ConstantValue	W
PowerRampSetup	W
PreambleRetransMax	W
PersistenceScaleFactor	W
MMax	W
NB01Min	W
NB01Max	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.CellRestriction.	P
CellBarred	W
IntraFreqCellReselectionIndicator	W
TBarred	W
AccessClassBarredListCS	W
AccessClassBarredListPS	W
CellReservedForOperatorUse	W

5.18 UMTSCellConfigFreqMeasurement Profile

Table 21 defines the UMTSCellConfigFreqMeasurement:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 21 – UMTSCellConfigFreqMeasurement:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.IntraFreqMeas.	P
MeasurementQuantity	W
FilterCoefficient	W
IntraFrequencyEventIdentity	W
TriggeringCondition2Event1a	W
TriggeringCondition1Event1b	W
TriggeringCondition2Event1e	W
TriggeringCondition1Event1f	W
ReportingRangeEvent1a	W
ReportingRangeEvent1b	W
WeightingFactorEvent1a	W
WeightingFactorEvent1b	W
ReportDeactivationThresholdEvent1a	W
ReportingAmountEvent1a	W
ReportingAmountEvent1c	W
ReportingIntervalEvent1a	W
ReportingIntervalEvent1c	W
HysteresisEvent1a	W
HysteresisEvent1b	W
HysteresisEvent1c	W
HysteresisEvent1e	W
HysteresisEvent1f	W
TimeToTriggerEvent1a	W
TimeToTriggerEvent1b	W
TimeToTriggerEvent1c	W
TimeToTriggerEvent1e	W
TimeToTriggerEvent1f	W
ThresholdUsedFrequencyEvent1e	W
ThresholdUsedFrequencyEvent1f	W
ReplacementActivationThresholdEvent1c	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.InterFreqMeas.	P
FilterCoefficient	W
MeasurementQuantity	W
WeightingFactorEvent2a	W
WeightingFactorEvent2b	W
WeightingFactorEvent2d	W
WeightingFactorEvent2f	W
HysteresisEvent2a	W
HysteresisEvent2b	W
HysteresisEvent2d	W

HysteresisEvent2f	W
TimeToTriggerEvent2a	W
TimeToTriggerEvent2b	W
TimeToTriggerEvent2d	W
TimeToTriggerEvent2f	W
ThresholdUsedFrequencyEvent2b	W
ThresholdUsedFrequencyEvent2d	W
ThresholdUsedFrequencyEvent2f	W
InterFrequencyEventIdentity	W
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.InterRATMeas.	P
GSMFilterCoefficient	W
BSICVerificationRequired	W
WeightingFactor	W
Hysteresis	W
TimeToTrigger	W
ThresholdOwnSystem	W
ThresholdOtherSystem	W

5.19 UMTSCellConfigUEInternalMeasurement Profile

Table 22 defines the UMTSCellConfigUEInternalMeasurement:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 22 – UMTSCellConfigUEInternalMeasurement:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.UEInternalMeas.	P
FilterCoefficient	W
UETxPwrThresholdEvent6a	W
TimeToTriggerEvent6a	W
UETxPwrThresholdEvent6b	W
TimeToTriggerEvent6b	W

5.20 UMTSCellConfigNLIntraFreqCell Profile

Table 23 defines the UMTSCellConfigNLIntraFreqCell:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 23 – UMTSCellConfigNLIntraFreqCell:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.	P
MaxIntraFreqCellEntries	R
IntraFreqCellNumberOfEntries	R
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList. IntraFreqCell.{i}.	C
MustInclude	W
PLMNID	W
RNCID	W
CID	W
LAC	W
RAC	W
URA	W
PCPICHScramblingCode	W
PCPICHTxPower	W

5.21 UMTSCellConfigNLInterFreqCell Profile

Table 24 defines the UMTSCellConfigNLInterFreqCell:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 24 – UMTSCellConfigNLInterFreqCell:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.	P
MaxInterFreqCellEntries	R
InterFreqCellNumberOfEntries	R
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList. InterFreqCell.{i}.	C
MustInclude	W
PLMNID	W
RNCID	W
CID	W
LAC	W
RAC	W
URA	W
UARFCNUL	W
UARFCNDL	W
PCPICHScramblingCode	W
PCPICHTxPower	W

5.22 UMTSCellConfigNLInterRATCell Profile

Table 25 defines the UMTSCellConfigNLInterRATCell:1 profile for the FAPService:1 object. The minimum REQUIRED version for this profile is FAPService:1

Table 25 – UMTSCellConfigNLInterRATCell:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.	P
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.	P
MaxGSMEntries	R
GSMNumberOfEntries	R
.FAPService.{i}.CellConfig.UMTS.RAN.FDDFAP.NeighborList.InterRATCell.GSM.{i}.	C
MustInclude	W
PLMNID	W
LAC	W
BSIC	W
CI	W
BandIndicator	W
BCCHARFCN	W

5.23 Fault Management Supported Alarms Profile

Table 26 defines the FaultMgmtSupportedAlarm:1 profile for the FAPService:1 object. The minimum required version for this profile is FAPService:1

Table 26 – FaultMgmtSupportedAlarms:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FaultMgmt.	P
SupportedAlarmNumberOfEntries	R
.FAPService. {i}.FaultMgmt.SupportedAlarm.{i}.	P
EventType	R
ProbableCause	R
SpecificProblem	R
PerceivedSeverity	R
ReportingMechanism	W

5.24 Fault Management Active Alarms Profile

Table 27 defines the FaultMgmtActive:1 profile for the FAPService:1 object. The minimum required version for this profile is FAPService:1

Table 27 – FaultMgmtActive:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FaultMgmt.	P
CurrentAlarmNumberOfEntries	R
.FAPService. {i}.FaultMgmt.CurrentAlarm.{i}.	P
AlarmIdentifier	R
AlarmRaisedTime	R
AlarmChangedTime	R
EventType	R
ProbableCause	R
PerceivedSeverity	R

5.25 Fault Management Profile Event History Profile

Table 28 defines the FaultMgmtHistory:1 profile for the FAPService:1 object. The minimum required version for this profile is FAPService:1

Table 28 – FaultMgmtHistory:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FaultMgmt.	P
HistoryEventNumberOfEntries	R
.FAPService.{i}.FaultMgmt.HistoryEvent.{i}.	P
EventTime	R
AlarmIdentifier	R
NotificationType	R
EventType	R
ProbableCause	R
PerceivedSeverity	R

5.26 Fault Management Profile Expedited Delivery Profile

Table 29 defines the FaultMgmtExpedited:1 profile for the FAPService:1 object. The minimum required version for this profile is FAPService:1

Table 29 – FaultMgmtExpedited:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FaultMgmt.	P
ExpeditedEventNumberOfEntries	R
.FAPService.{i}.FaultMgmt.ExpeditedEvent.{i}.	P
EventTime	R
AlarmIdentifier	R
NotificationType	R
EventType	R
ProbableCause	R
PerceivedSeverity	R

5.27 Fault Management Profile Queued Delivery Profile

Table 30 defines the FaultMgmtQueued:1 profile for the FAPService:1 object. The minimum required version for this profile is FAPService:1

Table 30 – FaultMgmtQueued:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.FaultMgmt.	P
QueuedEventNumberOfEntries	R
.FAPService.{i}.FaultMgmt.QueuedEvent.{i}.	P
EventTime	R
AlarmIdentifier	R
NotificationType	R
EventType	R
ProbableCause	R
PerceivedSeverity	R

5.28 Performance Management Profile

Table 31 defines the PerfMgmt:1 profile for the FAPService:1 object. The minimum required version for this profile is FAPService:1

Table 31 – PerfMgmt:1 Profile Definition for FAPService:1

Name	Requirement
.FAPService.{i}.PerfMgmt.	P
.FAPService.{i}.PerfMgmt.FileMgmt.	P
PeriodicUploadEnable	W
URL	W
Username	W
Password	W
PeriodicUploadInterval	W
PeriodicUploadTime	W

Annex A: Required CPE Method in Optional RPC Messages

Section A.4.1/TR-069 [2] describes the optional CPE Methods in RPC messages. By definition, they are optional for individual CPE vendor. However, among them, at least one of them is required for the FAP operation. Therefore, all FAP vendors MUST support the following optional CPE method RPC message:

- Upload

Annex B: Vendor Specific File Types

The following vendor specific file type is defined for this version of the FAP data model. All FAP vendors that comply with this specification MUST support this file type to be used in the Upload CPE method.

- "X 00256D 3GPP Performance File"

The format is based on the vendor specific file type extension per Section A.4.1.5/TR-069 [2]. By appending "3GPP" in the beginning of the vendor-specific identifier field, it uniquely identifies the file types to be specific for the 3GPP specification per TS 32.584 [28]. The <OUI> field is replaced with the Broadband Forum OUI value of 00256D.

Annex C: Configuring the IPsec Tunnel and QoS

C.1 Queuing Model

Figure 3 shows the queuing and bridging model for an Internet Gateway Device supporting the FAPService as defined in this Technical Report. The FAPService utilizes the QueueManagement and Layer3Forwarding framework as defined in TR-098 [3] in order to apply QoS differentiation to packets before and after applying IPsec encapsulation.

The elements of this model are described in the following sections.

Note – the queuing model described in this Annex is intended only to clarify the behavior of the related data objects. There is no suggestion that an implementation need be structured to conform to this model.

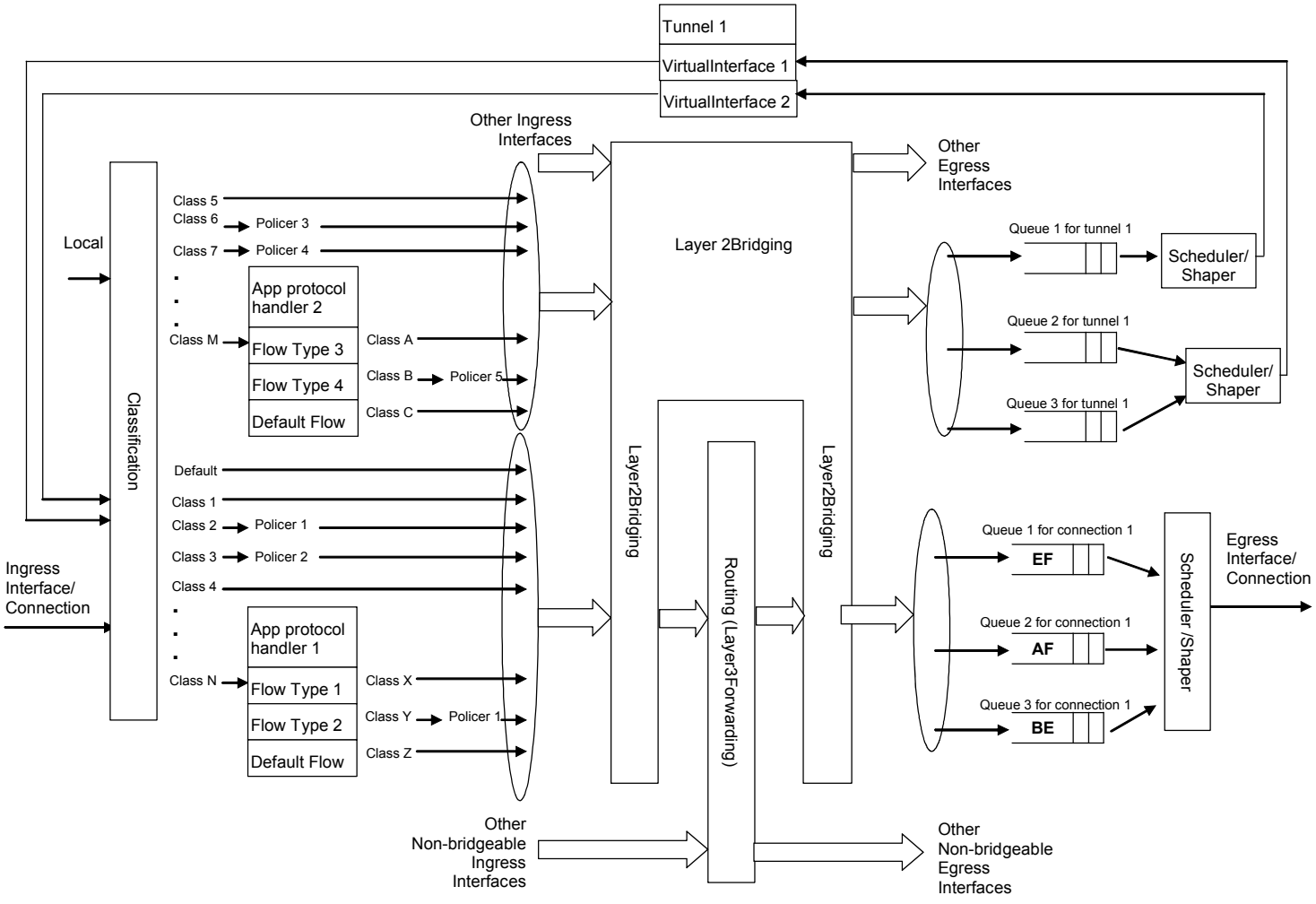

Figure 3 – Queuing Model for an Internet Gateway Device Supporting FAPService

C.1.1 Upstream Packet Classification

There is a single classifier object that is used both before and after packets are sent to the VirtualInterface object that represents the IPsec tunnel(s). (As can be seen in the Figure, packets can be viewed as passing twice through the entire QoS management framework.)

The QueueManagement Classification, App and Flow tables are used to select different classes of traffic. For example, UMTS conversational and streaming traffic can be associated with one or two QueueManagement.Queue instances and other UMTS QoS classes can be associated with a 3rd Queue. Classification outcome alternatives are identical to TR-098 [3].

Since the TR-098 [3] residential gateway might have LAN interfaces that receive additional traffic, the VirtualInterface can be associated with a 2nd layer of Queues so that the IPsec traffic receives the appropriate QoS with respect to other application traffic. It is also possible to direct all the IPsec packets through a PPPoE interface.

C.1.2 Policing

Policing is configured as for TR-098 [3]. Policing can be performed on FAPService packets both before and after IPsec tunneling.

C.1.3 Queuing and Scheduling

Queuing and scheduling is configured as for TR-098 [3], except that a VirtualInterface instance can be used as an egress interface.

In the WAN-facing direction, FAPService packets can first be queued and scheduled before IPsec tunneling. A different set of queues and schedulers can be employed for the packets after they have received the tunneling IP header.

C.1.4 Tunnel

The policies governing establishment of the IPsec tunnel are provisioned in the Security.CryptoProfile and Security.Secret objects. The CryptoProfile determines which ciphering and hashing algorithms are employed for the tunnel. Each CryptoProfile instance defines a separate tunnel (IKE instance). The Secret objects define credentials to be used to authenticate the tunnel setup. The VirtualInterface object is employed as an egress interface for Queue objects (one or more queues may be associated with a VirtualInterface instance) and ingress interface for Classification objects (encrypted packets can be reclassified to differentiate QoS treatment from packets arriving over LAN interfaces).

The IKESA and ChildSA objects provide information about currently established tunnels. This information is not retained beyond the lifetime of the tunnel.

In order to set up tunnel objects, one first configures a Secret or Pkey object. Thereafter one or several CryptoProfile instances are defined (typically one) and associated with an authentication scheme (Pkey and/or Secret) using the AuthMethod parameter. Thereafter one or several VirtualInterface instances are created and associated with a CryptoProfile instance. In order to create two ChildSA pairs with different outer DSCP marking, two VirtualInterface instances are created, both are associated with the same CryptoProfile instance and the MaxChildSA parameter is set to at least 4. (If the MaxChildSA parameter is set equal to 2, there will instead be separate IKE sessions for each VirtualInterface.) DSCP marking policy can be configured for the outside IPsec tunnel header.

The association of a Queue object with a VirtualInterface instance creates a packet processing association for the WAN-facing direction. The device automatically creates the corresponding Layer3Forwarding rule for the reverse direction.

The current version of the data model is intended to support tunneling of traffic to/from the local interface. Support for a more generalized use of the Tunnel object to allow tunneling of traffic to/from LAN interfaces may be added in a future update to the model.

C.1.5 Layer3Forwarding

Layer3Forwarding is envisioned to be configured on the WAN-side of the tunnel object. Implementations and those configuring devices should be careful to avoid associating the Layer3Forwarding object with traffic both before and after the IPsec tunnel, as this could allow undesired packets to traverse the tunnel.

C.1.6 LocalIPAccess Traffic

This version of the data model uses the FAPService.AccessManagement.LocalIPAccess object to perform local IP breakout to LAN or WAN.(depending on destination address). LocalIPAccess packets destined towards local LAN or WAN are extracted from the Iuh packet flow before they hit the QueueManagement Classification object. Similarly, LocalIPAccess return traffic is inserted into the flow such that it never passes through the Classification or Queue objects. The LocalIPAccess packets are inserted into the default queue for egress LAN or WAN interfaces. There is no explicit support in the current data model for configuring QoS or routing for LocalIPAcess packets. Later versions of the data model might use TR-098 [3], or its successor, to a fuller extent to configure QoS treatment of these packets.

C.2 URN Definitions for App and Flow Tables

TR-098 [3] defines a set of URNs for the App and Flow tables in the QueueManagement mechanism. An additional set of URNs have been defined to associate traffic arriving over the FAP air interface with the QueueManagement.Classification.{i} object.

C.2.1 ProtocolIdentifier

TR-098 [3] defines a set of URNs for the ProtocolIdentifier parameter in the App table of the QueueManagement service. The following set of URNs are additional values that are applicable to the FAPService object.

URN	Description
urn:broadband-forum-org:iuh.control	SCTP as defined in RFC2960 [35].
urn.broadband-forum-org:gtp	GTP protocol as defined in 3GPP TS 29.060 [23]
urn:broadband-forum-org:iuh.rtp	RTP as defined in RFC3550 [37] or multiplexed RTP
urn:broadband-forum-org:time	Network Time Protocol (NTP) as defined in RFC1305 [34] or IEEE1588 Precision Time Protocol (PTP) [1]

C.2.2 FlowType

A URN for the FlowType parameter in the Flow table of the QueueManagement service for the GTP protocol as defined in 3GPP TS29.060 [23] is formed as follows

For the ProtocolIdentifier urn:broadband-forum-org:gtp, the following QoS-related flow types are defined:

```
urn:broadband-forum-org:gtp-conversational
urn:broadband-forum-org:gtp-streaming
urn:broadband-forum-org:gtp-interactive
urn:broadband-forum-org:gtp-besteffort
```

End of Broadband Forum Technical Report TR-196

