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3. Quick start

3.2Log in to the web client

Requirements fo	or client	computer	browser	are	as	followsTable 3	-1.
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project	requirements
The CPU	Intel Core above 2GHz
memory	More than 2 g RAM
The hard disk	Not less than 100 MB of available space
The operating system	 Microsoft: Windows XP, Windows Vista, or Windows7 Mac: MacOS x 10.5 or above
Display resolution	Above 1024*768 pixels
The browser	Chrome 6 or later

surface3-1Client environment requirements

3.2.1Set up client computers

Before logging into the Web client, firstly set the IP address of the client computer and ensure that the client computer is connected to the base station. Take Windows 7 as an example.

- 1. Click start > control panel, and in the pop-up window click network and Internet.
- 2. Click view network status and tasks, and in the window that pops up, click local connections.
- 3. In the pop-up local connection status dialog box, click properties to pop up local connection properties.
- 4. Select Internet protocol version (TCP/IPV4), click properties, and the pop-up window looks like figure 3-2.



Figure 3-2 setting the client IP address

- 5. Select the IP address below.
- 6. Enter the IP address, subnet mask, and default gateway, and click ok.
 - IP address: 192.168. 0. XXX: (the recommended value of XXX is 102~199)
 - Subnet mask: 255.255.255.0
 - Default gateway: not required
- 7. Perform ping 192.168.0.101 in the command line window to check whether the network is connected between the client computer and the device.

3.2.2Log in to the web maintenance page

1. Enter https://192.168.0.101 in the browser address bar and click "sing in" to open the Web client login page, as shown in figure 14. Error! Reference source not found.

User name: admin

Password: Pico @ 2018

192.168.0.101 is the initial IP address of the interface.

登录 https://	192.168.8.248		
用户名			
密码			
		登录	Riji

 ${\tt chart3-3Log}$ in to the base station web page

3.3Quick initial configuration

Rapid configuration is to configure the cell parameters of the base station, including the working mode of the base station, cell identification, working frequency band, frequency point, etc., which needs to be set according to network planning data.

Select "management-> Cell" in the navigation bar to set basic parameters of the base station, as shown in figure 3-4.

Cen	AdminState:	Enable	EnbType:	MACRO ENB HOME ENB	
Debug	Duplex Mode:	FDD TDD	TAC:	27007	
Factory					
HeMS	SecGWServer:	61.132.154.86	Standalone:	Enable	
Network	S1SigLinkServer:	7.191.1.192	S1Status:	Success	
Performance Security	S1RetryMaxNum:	10	AssocStatus:	Active	
Synchronization					
Upgrade	PLMNID	Cell1			
Access Control	-	Con G			
Data Model					
	Primary PLMNID N	1			
	DI MINIZO	Enable			
	PLAND	46011			
	PLMNID	2: Enable			
	PLMNID	3:			
		Enable			
	PLMNID	4:			
		Enable			
	PLMNID	5:			
	PLMNID	6:			
	Submit				

Cell	AdminState:	✓ E	nable En		e: O MACRO ENB	HOME ENB
Debug	Duplex Mode:	• F		TAC	27007	
Factory	Sac Cill Capitori	E1 1	22 154 06	Standalog	Enable	
HeMS	Secowserver.	01.1	32.134.00	Stanualone		
Network	S1SigLinkServer:	7.19	1.1.192	S1Status	s: Success	
Performance	S1RetryMaxNum:	0		AssocStatus	s: Active	
Security						
Synchronization	DI MINITO		Coll1			
upgrade	PLMINID		Cent			
cess Control						
ita Model	CellIden	tity:	42121095		OpState:	true
	UeNum	ber:	2		VolteUeNumber:	0
	CandidateARFCN	List:	1850		CandidatePCIList:	0503
	EARFCM	IDL:	1850		EARFCNUL:	19850
	FreqBandIndica	itor:	3		PhyCellID:	95
	DL Bandwi	dth:	100		UL Bandwidth:	100
	ReferenceSignalPo	wer:	-8		PAGain:	0
	SubFrameAssignm	ent:	2	Specia	alSubframePatterns:	7

chart3-4Set basic parameters of base station quickly

The basic parameters are described in table 3-2.

AdminState Cell state control switch. (check enable when all basic parameters are configured) • Check Enable: protocol stack to set up cell, base station RF work; • Uncheck Enable: protocol stack delete cell, base station RF work; • Uncheck Enable: protocol stack delete cell, base station RF work; • Uncheck Enable: protocol stack delete cell, base station RF work; • Uncheck Enable: protocol stack delete cell, base station RF work; • Uncheck Enable: protocol stack delete cell, base station is located to define the sending range of paging messages. TAC is Assigned by the operator. • Value range: 0-65535 PLMN ID PLMN ID of cell ownership StisigLinkServer The IP address of MME. It should be consistent with the IP address of MME on the core network side. • Support to configure up to 32 MME addresses; • Multiple MME addresses are separated by English commas The Cell ID. • • When the eNB type is MARCO, it is the same as the eNB ID (20bits); • When the eNB type is MARCO, it is the same as the eNB ID (20bits); • When the eNB type is MARCO, it is the same as the eNB ID (20bits); • When the eell is successfully established and the RF works, the state	The parameter name	instructions
parameters are configured) • Check Enable: protocol stack to set up cell, base station RF work; • Uncheck Enable: protocol stack delete cell, base station RF shutdown; EnbType ENB type, MARCO and HOME Duplex Mode Duplex mode, default is FDD TAC Set the tracking area code where the base station is located to define the sending range of paging messages. TAC is Assigned by the operator. Value range: 0-65535 PLMN ID PLINN ID PLINN ID of cell ownership S1SigLinkServer The IP address of MME. It should be consistent with the IP address of MME on the core network side. • Support to configure up to 32 MME addresses; • Multiple MME addresses are separated by English commas CellIdentity The Cell ID. • When the eNB type is MARCO, it is the same as the eNB ID (20bits); • When the eNB type is MARCA, it is the value of eNB ID moved Bbits to the left and Cell ID and operation, that is, eNB ID'256+Cell ID (28bits); OpState Cell working status. • When the cell is successfully established and the RF works, the state is "true"; • The Opstate is False when Adminstate is not enabled or the cell is not successfully established. CandidateARFC Absolute frequency points according to SON's self-configuration function and establishes the cell. • If only one frequency points according to SON's self-configu	AdminState	Cell state control switch. (check enable when all basic
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unt (MIMO) RxAntennaPorts The number of antennas a base station USES for receiving, Count usually configured as "2" (MIMO)	Antonno Porto Co	Number of base station enterpase visually configured as "2"
RxAntennaPorts The number of antennas a base station USES for receiving, Count usually configured as "2" (MIMO)		(MIMO)
Count usually configured as "2" (MIMO)	uill DyAntonnoDorto	(WIIWO) The number of antonnas a base station USES for receiving
	Count	usually configured as "2" (MIMO)

Table 3-2 quick setting parameter description

1. After setting basic base station parameters in table 1-2, click "Submit" to Submit.

Note: some parameter changes (such as bandwidth, etc.) will cause the base station to restart, just wait for the restart to complete.

2. After basic parameter configuration is submitted, check "Enable" of "AdminState"

4. Common configuration

4.1Configure network interface

The network interface configuration interface of base station equipment is shown in the figure below.

Select "management network IP" in the navigation bar to enter the network interface configuration page.

Information	Ma	nagement	IP							
Management										
Cell	You All th	can change the I	P address, Mac a ures will be effec	ddress, MTU of I tive after rebool	(P interface.					
Debug										
Factory										
HeMS										
Network			Rou	te	DNS					
Performance										
Security	IP I	nterface:								
Synchronization										
Upgrade			IPv4		IP	v6			Other	
Access Control		Address Type	IPv4 address	Mask	Address Type	IPv6 address	VLAN id	Ethernet	Mac address	мти
Data Model	0	DHCP	10.98.100.218	255.255.255.0	Disabled	/64		eth0	D8:37:BE:20:00:10	1500
	0	Static	192.168.8.248	255.255.255.0	Disabled	4001::119/64		eth1	D8:37:BE:00:00:01	1500

Figure 4-1 network interface configuration

4.1.1Configure WAN interface

WAN interface is the external communication interface of the base station. It is mainly used to connect the base station with external devices, such as OMC, Mme, gateway and other devices. It supports the configuration of multiple VLANs to connect with different devices.

Select "management-> Network"->IP in the navigation bar and WAN interface configuration is shown in Figure 4-2.

Information	Manag	ement Net	work							
Management										
Cell	You can c	hange the IP addr	ess, Mac add	ress, MTU	of mai	n IP int	erface.			
Debug	All the net	twork configures w	vill be effectiv	ve after re	booting					
Factory										
HeMS	IP Interf	ace:								
Network	ID:		1							
Performance										
Security		Address Type:	DHCP V							
Synchronization	IPv4:	IPv4 address:	10.98.100.218							
Upgrade		Mask	255 255 25	5.0						
Access Control		Pidoki	200.200.20							
Data Model	TDuc.	Origin:	Disablec 🔻							
	1990.	IPv6 address:				64				
		VLAN :	Enable	VLANID:						
	Other:	Ethernet:	eth0 🔻							
	other.	Mac address:	D8:37:BE:2	D:00:10						
		MTU:		1500						
	Subn	nit Bac	k							

chart4-2Configure WAN interface address

The WAN port parameters are described in table 4-1, Table 4-2 and table 4-3.

Parameter name	explain
The Address Type	 The mode for WAN interface to obtain IPv4 address.Support: DHCP: dynamically obtaining IP address, no other parameters need to be configured; Static: IP address and mask need to be configured; Disabled: closes the function of WAN port IPv4 protocol. It is not recommended to select.
IPv4 address	 The IPv4 address of the WAN interface. In DHCP mode, it is allocated by DHCP server. Static mode requires manual configuration;
Mask	 IPv4 subnet mask for the WAN interface. In DHCP mode, it is allocated by DHCP server. Static mode requires manual configuration;

surface4-1 IPv4 parameter description of WAN interface

Parameter name	explain
Origin	 WAN interface to get IPv6 address.Support: DHCPv6: dynamically obtain IP address, no need to configure other parameters; Static mode: IPv6 address and mask need to be configured; Disabled: turns off IPv6 protocol function of WAN port (turns off IPv6 protocol by default);
IPv6 address	 IPv6 address and mask of WAN interface. In DHCPv6 mode, it is assigned by DHCPv6 server. Static mode requires manual configuration;

Parameter name	explain
Mac address	MAC address of WAN interface
MTU	MTU size of WAN interface

Table 4-3 description of other common parameters of WAN interface

4.1.2Configure VLAN

Refer to Figure 4-2 for VLAN configuration interface and table 4-4 for parameter description.

Parameter name	explain
Enable	VLAN function switch
VLAN ID	VLAN ID

surface4-4 VLAN parameter description

4.1.3Configure LAN interface

LAN interface is the local maintenance interface of the base station, which is mainly used for the local maintenance and configuration of the base station.

The default IP address for the LAN interface is 192.168.8.248, which is usually left as the default configuration.

4.1.4Configure IPv4 routing

Select "management-> Network->Route" in the navigation bar to enter the route configuration view.

1. Click "add" to add a routing instance, as shown in Figure 4-3.

Management Cell Debug	You o All th	an add/d	elete/chan	ige the rou is will be e	ite manully. ffective after re	ebooting.							
HeMS													
Network		IP		,	Route	DNS							
Performance													
Performance Security Synchronization Upgrade	Rout	er Infor	nation:		IPv4Fe	orwarding				IPv	6Forward	ing	
Performance Security Synchronization Upgrade Access Control Data Model	Rout	er Infor	nation: Status	Route Type	IPv4F4 Dest IP Address	Dest Subnet Mask	Gateway IP Address	Ethernet	Enable	IPv Status	6Forwardi Dest IPv6 Prefix	Next Hop	Etherne

chart4-3Add route

2. Configure routing entries

1) Add a default route, as shown in Figure 4-4.

Information	Management -	- Network		
Management				
Cell	You can add/delete/	change the dns manu	illy.	
Debug	All the network conf	igures will be effective	e after rebooting.	
Factory				
HeMS	Router informatio	n:		
Network	Router ID:		NEW	
Performance		Enable:	Enable	
Synchronization		StaticRoute:	Enable	
Upgrade		DestIPAddress:	0.0.0.0	
Access Control	TPv4Forwarding	DestSubnetMask:	0.0.0.0	
Data Model		GatewayIPAddress:	192.168.3.1	
		Ethernet:	eth0 V	
		Origin:	Static	
		Enable:	Enable	
		DestIPPrefix:	4001::118	64
	IPv6Forwarding	NextHop:	4001::118	
		Ethernet:	none 🔻	
		Origin:	Static	
	Submit	Back		

Figure 4-4 add default route

2) Add network segment route, as shown in Figure 4-5.

Nationation Nationation Cell You can add/delete/change the dns manully. Debug All the network configures will be effective after rebooting. Factory Router information: Network Router ID: NEW Performance Scartity StaticRoute: Improved the static configures will be effective after rebooting. Synchronization Upgrade StaticRoute: Improved the static configures will be effective after rebooting. All the network configures will be effective after rebooting. Enable: Improved the static configures will be effective after rebooting. Synchronization Upgrade Enable: Improved the static configures will be effective after rebooting. Data Model Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebooting. Improved the static configures will be effective after rebotic will be effective after rebo	nformation	Management -	Notwork	
You can add/delete/change the dns manully. Debug All the network configures will be effective after rebooting. Factory Router information: HeMS Router ID: NEW Performance Scurity StaticRoute: Information: Synchronization Upgrade DestSubnetMask: 255.0.0.0 Data Model IPv#Forwarding DestSubnetMask: 255.0.0.0 IPv#Forwarding DestSubnetMask: 255.0.0 IPv#Forwarding Ethernet: ethol IPv#Forwarding Ethernet: ethol	Inormation	Management	Network	
Cent All the network configures will be effective after rebooting. Factory Router information: HeMS Router information: Network Enable: Imable: Imabl	danagement	You can add/delete/	change the dns manu	illy.
Debug Reventer information Revert Router information Network Router ID: NEW Performance Enable: Enable: Security StaticRoute: Enable: Synchronization Upgrade DestIPAddress: 10.0.0 Locess Control DestSubnetMask: 255.0.0 Jata Model Ethernet: eth0 eth0 IPv4Forwarding Ethernet: eth0 eth0 IPv6Forwarding NextHop: 4001::118 64	Cell	All the network conf	iqures will be effectiv	e after rebooting.
Reductr Router information: Network Router ID: NEW Performance Enable:	Debug		igures this so effectiv	e anter rebooking:
Network Network Performance Security Security Enable: Synchronization DestIPAddress: Upgrade DestSubnetMask: ccess Control DestSubnetMask: Jata Model IPv+Forwarding IPv+Forwarding DestSubnetMask: Z55.0.0 GatewayIPAddress: IPv+Forwarding Ethernet: IPv+Forwarding Enable: IPv+Forwarding Ethernet: IPv+Forwarding NextHop: 4001::118 64	Factory	Router informatio	n:	
Network Router ID: NEW Performance Security Enable:	Hems			
Performance Enable Enable Security Synchronization DestIPAddress: Enable Upgrade DestSubnetMask: 255.0.0.0 DestSubnetMask: 255.0.0.0 GatewayIPAddress: 192.168.3.1 Ethernet: eth0 eth0 Origin: Static IPv6Forwarding DestIPPrefix: 4001::118 Ethernet: none eth0::118	Network	Router ID:		NEW
Security Synchronization Upgrade Control Data Model IPv4Forwarding IPv4Forwarding IPv6Forwarding	Performance		Enable:	Enable
Synchronization Upgrade DestIPAddress: 10.0.0 Lipyrade DestIPAddress: 10.0.0 DestSubnetMask: 255.0.0 GatewayIPAddress: 192.168.3.1 Ethernet: eth0 Origin: Static IPv6Forwarding DestIPPrefix: 4001::118 64 Ethernet: none	Security		StaticRoute:	Enable
Opgrade DestPAddress: 10.0.0 cccess Control pata Model IPv4Forwarding DestSubnetMask: 255.0.0 GatewayIPAddress: 192.168.3.1 Ethernet: eth0 ▼ Origin: Static IPv6Forwarding DestIPPrefix: 4001::118 IPv6Forwarding NextHop: 4001::118	Synchronization			
IPv4Forwarding DestSubnetMask: 255.0.0.0 ata Model GatewayIPAddress: 192.168.3.1 Ethernet: eth0 ▼ Origin: Static IPv6Forwarding DestIPPrefix: 4001::118 IPv6Forwarding NextHop: 4001::118	Upgrade		DestIPAddress:	10.0.0
ata Model GatewayIPAddress: 192.168.3.1 Ethernet: eth0 ▼ Origin: Static Brable: Enable: IPv6Forwarding NextHop: Hethernet: 4001::118 Ethernet: none	ccess Control	IPv4Forwarding	DestSubnetMask:	255.0.0.0
Ethernet: eth0 • Origin: Static Enable: Enable DestIPPrefix: 4001::118 NextHop: 4001::118 Ethernet: none •	ata Model		GatewayIPAddress:	192.168.3.1
Origin: Static Enable: Enable DestIPPrefix: 4001::118 IPv6Forwarding NextHop: Ethernet: none			Ethernet:	eth0 🔻
Enable: Enable DestIPPrefix: 4001::118 IPv6Forwarding NextHop: Ethernet: none			Origin:	Static
DestIPPrefix: 4001::118 64 IPv6Forwarding NextHop: 4001::118 64 Ethernet: none ▼ 1			Enable:	Enable
IPv6Forwarding NextHop: 4001::118 Ethernet: none *			DestIPPrefix:	4001::118 64
Ethernet: none 🔻		IPv6Forwarding	NextHop:	4001::118
			Ethernet:	none 🔻
Origin: Static			Origin:	Static

Figure 4-5 add segment route

Description of main route configuration parameters, as shown in table 4-5.

Parameter	Parameter name	explain
classification		
IPv4 routing	The Enable	Route item switches.Check to enable, check to not
parameters		enable.
	The StaticRoute	Check this if the configured route is network
		segment route;
		If the configured route is the default route, this item
		is not checked;
	DestIPAddress	Destination IP address.
	DestSubnetMask	The subnet mask for the destination IP address.
	GatewayIPAddress	Gateway IP address to destination IP address.
	Ethernet	Select "eth0"
IPv6 Routing	Enable	Route entry switch.Tick to enable and uncheck
parameters		to disable.
	DestIPPrefix	Destination IPv6 network segment.
	NextHop	Next hop address.
	Ethernet	Configure the network interface where the
		route is located, WAN port is ethO

surface4-5Description of main route configuration parameters

4.2Configure IPSec

Enb-f02004 supports EAP-AKA, certificate and PSK authentication modes. The configuration methods of the three modes are described below.



Figure 4-6 IPSec configuration flow

4.2.1Set PSK

Web page path: "management -> security -> PSK"

1. Click "add" to add PSK, or select and click "Edit" to edit PSK.

T&W						
Information	Ма	nag	ement	PSK		
Management						
Cell		ID	Enable	Encoding	PreSharedKey	In use
Debug				5		IP sec
Factory	0	1	Y	ASCII	 •••••	Y
HeMS						
Network						
Performance		Ed	IC	ADD	Delete	
Security						
IPsec						
Certificate						
PSK						
VSIM						
File transmission						
Synchronization						
Upgrade						
Access Control						
Data Model						

Figure 4-7 adding or modifying PSK

2. Select the encoding method of PSK, enter the key value, such as 123456, and then click "submit" to submit.

T&W		
Information		
Management	Managemer	nt PSK detail
Cell	ID:	1
Debug	10.	- -
Factory	Enable/Disable:	Enable
HeMS	Encoding:	ASCII 🔻
Network	PreSharedKey:	
Performance		
Security		
IPsec	Submit	Back
Certificate		
PSK		
vSIM		
File transmission		
Synchronization		
Upgrade		
Access Control		
Data Model		

Figure 4-8 configure PSK

3. After submitting the configuration, you can view the PSK information through the web, as shown in Figure 4-9.

	mai	nag	ement	PSK		
1anagement						To use
Debug		ID	Enable	Encoding	PreSharedKey	III use
Factory				7222		IP sec
HeMS	0	1	Y	ASCII	•••••	Y
Network						
Performance		Ed	it	Add	Delete	
Security						
IPsec						
Certificate						

Figure 4-9 view PSK information on the web

4.2.2Configure virtual SIM card

Web page path: management->Security->Vsim

1. Click Add to add the virtual SIM configuration, or select and click Edit to edit the vSIM configuration.

T 0 XX7							
IXW							
Information	M	ana	gement	vSIM			
Management							
Cell							In use
Debug		11) Enable	Encoding	Key	Орс	IP sec
Factory		a 1	v	Hey			
HeMS		-		Tick			
Network							
Performance		E	dit	Add			Delete
Security							
IPsec							
Certificate							
PSK							
vSIM							
File transmission							
Synchronization							
Upgrade							
Access Control							
Data Model							

Figure 4-10 adding or modifying virtual USIM

2. Enable virtual SIM configuration, select encoding mode, input key and OPC value, and then click "submit" to submit.



Figure 4-11 configuring virtual SIM parameters

4.2.3Configure certificate

There are two ways to import certificates: through the web interface and through the network management.

- 1. Import the certificate through the web, as shown in Figure 3-11.
 - Select CA Cert, click browse, and select the corresponding certificate file (usually in PEM format)

⚠ be careful:

It is not supported to put multiple CA certificates into one certificate file; If there are multiple CA certificates, you need to import them multiple times.

• Select "client cert", click "Browse", and select the corresponding certificate file (usually in p12 format); If the pkcs12 file has a decompression password, you need to enter the corresponding password.

Information	Management Certificate Maintainace		
Management			
Cell	You can only update or delete certificates out of use.		
Debug	You can update a certificate by submitting another certificate with the	same issuer and serial number.	
Factory			
HeMS			
Network	Cert Maintainace		
Performance			
Security	Certificate List:		
IPsec			
Certificate	ID Enable Type Issuer	Detail	In use
PSK	No found certificate		
eSIM			
File transmission	Enable Delete		
Synchronization			
Upgrade	Certificate Update:		
Access Control			
Data Model	CA Cert 1 Certificate in PEM format need to be import	ed one by one.	
	 Olient Cert 2 Certificate in PKCS12 format should include 	client certificate and private KEY.And adding (CA certificate in the same package is bette
	Cert Password: 3 If certificat	te in PKCS12 format have a password that shou	ld be input here.
	Cert File Name: 选择文件 未选择任何文件 4 Select certi	ficate you want to import.	
	Import 5 Click button "import"		

Figure 4-12 web import certificate

2. Import the certificate through the network management.

The NMS can download the certificate through the download method. The download file types are "x d837be clcert" (client certificate p12 / PFX) and "x d837be cacert" (CA certificate). D837be is the manufacturer oui. Pay attention to replacement when different manufacturers have different versions.

3. After the certificate is imported, you can view the relevant information of the certificate through the web page.

T&W

nformation	Mai	nag	ement	Cei	rtificate Maintenance			
lanagement								
Alarm Information	Allow	s on	y the upd	lating or	deletion of expired certificates.			
Cell	Upda	tes o	r uploads	a certifi	cate that has the same issuer and s	erial number.		
Debug	The	syste	m automa	tically re	boots after a certificate is changed	or updated.		
Factory								
HeMS				-				
Network	e	ert M	aintenand	be -				
Performance								
Security	Cert	ifica	te List:					
IPSec		ID	Fashla	Turne	Tomas		Detall	T 12 1100
Certificate		ID	Enable	Type	Issuer		Detail	In use
PSK						SerialNumber	012325BC	
VSIM						:		
File transmission				chart	C=CN,CN=CMCA Internal Server	Subject :	C=CN,O=CMCC,CN=F068650AD676@AP.datangmobile.cn	
Synchronization	0	1	Ŷ	Client	CA_2048	SubjectAlt :	critical	
						Valid period:	2020-12-28 8:14:32 - 2030-12-28 8:14:32	
Upgrade						Last Modify :	2021-5-8 1:18:15	
Upgrade cess Control								
Upgrade ccess Control ata Model								
Upgrade ccess Control ata Model								

Figure 4-13 viewing certificate information on the web

4.2.4Configure profile

4.2.4.1Add or modify profile

Web page path: management -> security -> IPSec -> profile

Click Add to add or edit to modify the profile configuration.

4.2.4.2Setting profile parameters

For PSK, certificate and USIM, except for different authentication mode parameters, other parameters can be configured in public.Please refer to the following details.

T&W

	Man	ageme	ent IPsec	Profile		
Information						
Management				Enable:	🗹 Enable	
Cell				RemoteEndpoints:	61.132.15	4.86
Eactory				LocalId:	22950330	00E
HeMS				RomotoId:	nsk@com	
Network				Remoteru.	psk@com	baic
Performance				EAPIdentity:		
Security				SubnetIPType:	same to S	ecGW 🔻
IPsec				LocalCubactu	0.0.0/0	
Certificate				LocalSubhet;	0.0.0.0/0	
PSK				RemoteSubnet:	0.0.0.0/0	
vSIM File transmission			Encr	yptionAlgorithms:	AES-CBC	
Synchronization	IKE	v2:	In	tegrityAlgorithms:	HMAC-SH	A1-96
Upgrade			DiffieHellman	GroupTransforms	MODP-10	24
Access Control		!	Dimeneliman	Stoup transionins.	MODP-10	24
Data Model			Encr	yptionAlgorithms:	AES-CBC	
	ES	SP:	In	tegrityAlgorithms:	HMAC-SH	A1-96
			DiffieHellman	GroupTransforms:	MODP-10	24
				Rekey:	Enable	
				Reauth:	Enable	
			I	KEv2SATimeLimit:	7200	
				ChildSATimoLimite	2600	
				childoA hineEinic.	5000	
				MarginTime:	300	
		IK	Ev2DeadPeer(DetectionTimeout:	30	
		1	KEv2DeadPee	erDetectionAction:	None 🔻	
	IKEV	2Auth	Method : P	SK 🔻		
	ID	Enabl	e Encoding	PreShared	Key	In use
	1	Y	0	•••••		

Figure 4-14 web configuration profile

(1) Profile common parameter description

The profile common parameters are described as follows:

Device. IPsec. Profile. {i}. X_D837BE_Mode = tunnel (default)

Device. IPsec. Profile. {i}.X_D837BE_Interface = Device. IP. Interface. 1. (used to specify the enabling IPSec network port. The default is WAN portIP. Interface. 1.)

Device. IPsec. Profile{1}. Remoteendpoints = 10.98.100.192 (fill in the security gateway address)

Device. IPsec. Profile. {i}.X_D837BE_LocalId = *@lte.strongswan.org(base station ID (left ID))

Device. IPsec. Profile. {i}. X_D837BE_RemoteId = secgw. femto.cn (security gateway ID (right ID))

Device. IPsec. Profile. {i}.X_D837BE_Eapidentity = 0 + IMS1 (15 IMS1 of ESIM, specific filling requirements need to be confirmed with security gateway maintenance personnel)

Device. IPsec. Profile. {i}.X_D837BE_Subnetiptype = 0 (0: virtual address IP type is consistent with real address, 4: apply

for IPv4 virtual address, 6: apply for IPv6 virtual address)

Device. IPsec. Profile. {i}.X_D837BE_Local subnet = 0.0.0.0/0 (specify local TS policy, but general security gateway will ignore it) Device. IPsec. Profile. {i}. X_D837BE_Remotesubnet = 0. 0. 0. 0/0 (specify remote TS policy, fill in according to network planning) Device. IPsec. Profile{1}. Ikev2allowedencryptionalgorithms = aes-cbc (encryption algorithm of Ike, multiple choices) Device. IPsec. Profile {|}. Espallowedencryptionalgorithms = aes-cbc Device. IPsec. Profile {1}. Ikev2allowedpseudorandomfunctions = hmac-sha1 (random number algorithm of Ike, multiple choice) $\label{eq:lowedintegrity} {\tt Device.\, Profile \{I\}. \ lkev2allowedintegrity \ algorithms \ = \ hmac-sha1-96}$ Device. IPsec. Profile {I}. Espallowedintegrity algorithms = hmac-sha1-96 Device. IPsec. Profile {|}. Ikev2alloweddiffiehellmangrouptransforms = modp-1024 Device. IPsec. Profile. {i}. X_D837BE_Espalloweddiffiehellmangrouptransforms = none Device. IPsec. Profile {1}. Ikev2deadpeerdetectiontimeout = 30 Device. IPsec. Profile. {1}. Antireplaywindowsize = 32 (anti replay parameter, max. 64) Device. IPsec. Profile. {i}. X_D837BE_Strictcrlpolicy = no (do not perform CRL check) Device. IPsec. Profile. {i}.X_D837BE_Rekey = 1 (rekey function switch) Device. IPsec. Profile. {i}.X_D837BE_Reauth = 0 (reauth function switch, reauth turns off automatically when rekey function is turned off) Device. IPsec. Profile. {|}. |kev2satimelimit = 7200 (IKE SA life cycle) Device. IPsec. Profile {|}. Childsatrafficlimit = 5368709120 (bytes allowed in ESP life cycle, 5g bytes by default) Device. IPsec. Profile. {I}. Childsatimelimit = 3600 (ESP SA life cycle)

(2) PSK authentication mode, profile configuration

When PSK authentication is used, the PSK for authentication needs to be configured in the profile. As shown in Figure 4-15.

	Level di papenanan						
				Localto:	2295033000E		
nformation				psk@comba.c			
Cell				EAPIdentity:			
Debug				SubnetIPType:	same to	SecGW ¥	
Factory				LocalSubnet:	0.0.0.0/0)	
HeMS				RemeteCube at	0000	_	
Parformance				KernoteSubnet.	0.0.0.0/0	<u> </u>	
Security			Encr	yptionAlgorithms:	AES-CBC	2	٣
IPsec	IKE	Ev2:	In	tegrityAlgorithms:	HMAC-S	HA1-96	٣
Certificate		D	iffieHellman	GroupTransforms:	MODP-1	024	۳
eSIM			Encr	yptionAlgorithms:	AES-CBC	2	۳
File transmission	ES	SP:	In	tegrityAlgorithms:	HMAC-S	HA1-96	۲
Synchronization		D	iffieHellman	NONE		۲	
Upgrade Access Control		Rekey:				Enable	
Data Model				Enable	9		
			р	7200			
				3600			
				300			
		IKEV	2DeadPeer	30			
		IK	Ev2DeadPee	None ¥			
	IKEv	2AuthM	tethod : P	SK 🔻			
	ID	Enable	Encoding	PreShared	Key	In use	1
	1	Y	0				
	IKEv2PeerAuthMethod: PSK V						
	ID	Enable	Encoding	PreShared	Key	In use	
			0				
	1	Y	0	************		0	
	1	Y	0			0	

Figure 4-15 select PSK

(3) Virtual SIM authentication mode, profile configuration

When the virtual USIM authentication mode is adopted, the virtual vSIM for authentication needs to be configured in the profile. As shown in the figure.

	LocalId:				2295033000E			
Information				RemoteId:	psk@comba.c			
Management								
Cell		EAPIdentity:						
Debug		SubnetIPType:				SecGW ▼		
Factory				LocalSubnet:	0.0.0/0			
HeMS				RamotaSubnat:	0000			
Performance				RemoteSubhet.	0.0.0.0	<u> </u>		
Security			Encr	yptionAlgorithms:	AES-CB	2	*	
IPsec	IKE	v2:	Ini	tegrityAlgorithms:	HMAC-S	HA1-96	*	
Certificate		D	ffieHellman	GroupTransforms:	MODP-1	024	*	
PSK			Encr	yptionAlgorithms:	AES-CB	:	*	
File transmission	ESD-	P:	In	tearityAlgorithms:	HMAC-S	HA1-96		
Synchronization			Difficial alleran Group Transformer			NONE		
Upgrade		DiffieHellmanGroupTransforms:			NONE +		•	
Access Control				Rekey:	Enable			
Data Model		Reauth:				Enable		
			D	KEv2SATimeLimit:	7200			
			(ChildSATimeLimit:	3600			
				MarginTime:	300			
		IKEV	2DeadPeer0	DetectionTimeout:	30			
		IVE:/2DoordRoorDataction/ction						
	INEV2DeadPeerDetectionAction: None *							
1								
	IKEV	ZAuthM	lethod : Ps	SK 🔻				
	ID I	Enable	Encoding	PreShared	Key	In use	1	
	1	r	0					
	IKEv	2PeerA	uthMethod	I: PSK V				
	ID I	Enable	Encoding	PreShared	Key	In use		
	1	1	0			0		

Figure 4-16 selecting virtual SIM

(4) Certificate authentication method, profile configuration

T&W								
		ESP:		IntegrityAlgorithms:	HMAC-SHA1-96		~	
Information			DiffieHellm	anGroupTransforms:	NONE		~	
Management				Rekey:	 Enable 			
Alarm Information				Reauth:	Enable			
Debug				IKEv2SATimeLimit:	7200			
Factory								
Upgrade				ChildSATimeLimit:	3600			
HeMS				MarginTime:	300			
Network		I	KEv2DeadPe	erDetectionTimeout:	30			
Security								
• IPSec			IKEv2Dead	PeerDetectionAction:	None 🗸			
Certificate	_							
PSK	IKE	/2AuthM	ethod : Cer	rtificate 🗸				
VSIM	ID	Туре		IntegrityAlgorithms: HMAC-SHA1-96 eHellmanGroupTransforms: NONE Rekey: Enable Reauth: Enable IKEv2SATimeLimit: 7200 ChildSATimeLimit:				
File transmission	1	Client (C = CN O = 0	Thing Tolocom Cupner	dong Acadomy C	N – Cuppade	ong Acadomy SubCA	
Data Model	1	Client C	$c = c_{N,O} = c_{N,O}$	unina relecom Guango	long Academy, ci	N = Guanguo	ong Academy Subca	
	IKE	/2PeerAi	uthMethod	PSK V				
	ID	Enable	Encoding	PreShare	dKey	In use		
	1	Y	0	•••••		0		
		IKEv2SATimeLi ChildSATimeLi MarginT IKEv2DeadPeerDetectionTime IKEv2DeadPeerDetectionAct IKEV2DeadPeerDetectionAct <th></th> <th></th> <th></th> <th></th>						

Figure 4-17 selecting certificates

(5) View profile configuration information

After the profile configuration is completed, you can view and confirm the profile configuration information through the web page, as shown in the figure.

T&W							
			LocalId:	2295033000E			
Information			RemoteId:	psk@comba.c			
Management			EAPIdentity:				
Cell			SubnotIDTunou	come to SecGW			
Debug			Subrieue rype.	same to secow +			
HeMS			LocalSubnet:	0.0.0/0			
Network			RemoteSubnet:	0.0.0/0			
Performance		Enci	ryptionAlgorithms:	AES-CBC	•		
Security	IKEv2:	In	tegrityAlgorithms:	HMAC-SHA1-96	•		
Certificate		DiffieHellman	GroupTransforms:	MODP-1024	•		
PSK		Enci	ryptionAlgorithms	AES-CBC	•		
vSIM	500	Enci	i i al il				
File transmission	ESP:	In	tegrityAlgorithms:	HMAC-SHA1-96	•		
Synchronization		DiffieHellman	GroupTransforms:	MODP-1024	•		
Access Control			Rekey:	Enable			
Data Model			Reauth:	Enable			
		I	7200				
			3600				
			300				
	IK	Ev2DeadPeer	DetectionTimeout:	30			
		IKEv2DeadPee	erDetectionAction:	None V			
			or bottoet of interior in				
	IKEv2AuthMethod ESIM						
	ID Enabl	e Encoding	eS	SIMKey	In use		
	1 Y	1	01020304050607	080102030405060708	8		
	IKEv2Pee	rAuthMethod	d: PSK 🔻				
	ID Enabl	e Encoding	PreShared	Key In use			
	1 Y	0	•••••	0			
	Submit	Back					

Figure 4-18 viewing profile information

4.2.5 Enable IPSec

After completing the relevant configuration in the above chapters, enable IPSec.Check the corresponding authentication method and click enable to enable IPSec function.

⚠ note:

After clicking "enable", the button will switch to "disable", indicating that the current status is already enabled, and clicking again will perform the disable operation.

Information	Management IPsec
Management	
Cell	IPsec Status : Please choose proper authenticate method before enable IPse
Debug	✓ PSK
Factory	Support Auth Method SIM
HeMS	
Network	Enable/Disable Enable
Performance	
Security	IPsec Tunnel Configuration:
IPsec	
Certificate	Profile PassThrough Tunnel
PSK	
VSIM	Enable Y
File transmission	RemoteEndpoints 117 34 200 145
Synchronization	
Upgrade	LocalId
Access Control	RemoteId 117.34.200.145
Data Model	EAPIdentity

Figure 4-19 enabling IPSec

4.2.6View IPSec status

After the base station and the security gateway successfully establish a security tunnel, you can view the IPSec tunnel status in the page Management \rightarrow IPsec \rightarrow Tunnel. As shown in the figure below.

T&W									
Information	Ма	nagem	ent IPseo	•					
Management Cell	IPse	ec Status	s : Please choos	e proper authentic	cate method be	efore enable IPs	ec function.		
Debug Factory		Support	Auth Method	PSK SIM CERT					
HeMS Network		E	nable/Disable	Disable					
Performance									
Security	IPse	ec Tunne	l Configuration	:					
IPsec									
Certificate		Profi	le	PassThrough	Tunne				
PSK									
vSIM		Status	LocalAddress	RemoteAddress	InboundSPI	OutboundSPI	LocalTrafficSelector	RemoteTrafficSelector	CreationTime
File transmission		Status	LocalAddress	RemoteAddress	InboundsF1	outboundsri	Locarrancselector	Remoterramcselector	creationnine
Synchronization								7.191.0.0/16 10.0.0/8	2010-11-
Upgrade		Up	134.84.128.16	61.132.154.86	0xc856f3f5	0xc92be99d	134.84.128.16/32	134.64.248.0/24	14T06:04:247
Access Control								134.84.0.0/16	

Figure 4-20 viewing IPSec tunnel status

4.3Configure base station parameters

4.3.1Set encryption and integrity protection algorithm

Set the data encryption and integrity protection algorithm of PDCP sublayer.

- 1. Select "data model" and "device" in the navigation bar
- 2. Enter "" to enter the configuration page, as shown in Figure 4-21. Device.Services.FAPService.1.CellConfig.LTE.EPC.
- 3. AllowedCipheringAlgorithmList



The following security parameters usually do not need to be modified, just keep the default value!

T&W				
Information Management Access Control Data Model	DataModel Device	search clear		
DB export	DB tree	Device.Services.FAPService.1.CellC	onfig.LTE.EPC.	
DB import Device Internal	Device Services FAPService FAPService.1 Capabilities FAPSorvice.1 Capabilities FAPControl AccessMgmt CeliConfig SystinfoCtriParam LTE Tunnel EPC PLMNList PLMNList PLMNList.2 PLMNList.2 PLMNList.3 PLMNList.4 PLMNList.5 PLMNList.6 L QqS	AllowedCipheringAlgorithmList AllowedCipheringAlgorithmList AllowedIntegrityProtectionAlgorithmList TAC EAID X_DB378E_PLMNMatchS1Enable MaxPLMNListEntries MaxQoSEntries Device.Services.FAPService.1.CellConfig Device.Services.FAPService.1.CellConfig Submit drop	128-EEA1,128-EEA2,128-EEA3,EEA0 128-EIA1,128-EIA2,128-EIA3,EIA0 27007 0 Enable 16 256 LLTE.EPC.PLMNList.(i). LLTE.EPC.QoS.(i).	string(256) string(256) ursignedInt([0:65735]) unsignedInt([0:16777216]) boolean unsignedInt unsignedInt

Figure 4-21 setting encryption and integrity protection algorithm

4. Safety parameter description is shown in table 4-6.

Parameter name	explain
AllowedCipheringAlgorithmList	Encryption algorithm.
	Value range:
	• 128-EEA1, 128-EEA2, 128-EEA3, EEAO
	 Configurable, separated by commas
	The default value is 128-eeal
AllowedIntegrityProtectionAlgorithmList	Integrity protection algorithm.
	Value range:
	• 128-EIA1,128-EIA2,128-EIA3,EIA0
	• Configurable, separated by commas

Parameter name	explain
	The default value is 128-eial

Table 4 -6Safety parameter description

4.3.2Configure network management connection

Select "management-> HeMS" in the navigation bar, as shown in Figure 4-22.

T&W		
Information	Management He	eMS Configuration
Management Cell Debug	Configure HeMS Connection	on tificates for HeMS Connection
HeMS	HeMS Connection:	
Network Performance	HeMS Address:	http://124.93.160.157:8080/cwmp
Security	Username:	
Synchronization Upgrade	Password:	
Access Control	SecGWServer:	61.132.154.86
Data Model	Periodic Inform	
	renoule inform interval.	100

chart4-22Configure network management

Parameter name	explain
HeMS Address	Network management address of Picchi station, such as http://135.224.42.2:8080/itmscpe/inform
Username	User name of network management, fill in as required.
Password	Network management password, fill in as required.
SecGWServer	Security gateway address. According to the actual network deployment, this item needs to be filled in when the security gateway needs to be connected before connecting to the network management.

Network management parameters are shown in table 3-9.

Table 4-7 network management parameter description

4.3.3Configure base station synchronization parameters

4G small base station supports 3 synchronization modes, IEEE1588 air port and GPS. When the synchronization mode switching function is turned on, the base station can switch between synchronization modes.

Information Management	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time	
Security ACS	Sync Setting:					
Cell	CurrentSyncMode	Freedom				
Performance	SyncStatus	Undefined				
Synchronization	SuccessTime	0001-01-01T00:00:00Z				
Network Fault	SyncSwitchEnable	Enable				
Debug	SyncMode1	Freedom •				
Upgrade	SyncMode2	Freedom •				
Factory Access Control	SyncMode3	Freedom •				
Data Model	SyncFailureHandling	Ignored •				
	TimingCorrectionOffset	0				
	Submit					

Figure 4-23 synchronization mode interface

<u> </u>∧_note:

• At present, syncmode1 is only used for synchronization mode setting, while syncmode2 and syncmode3 are not used temporarily.

• Air port synchronization can only synchronize frequency, not time. It needs to be used with NTP function.

Synchronization mode	explain
Freedom	Free mode, i.e. no synchronization
	EEE1588 uses accurate time stamp to calculate time and frequency offset
	through IEEE1588 message transmitted between master and slave
	devices, so as to achieve frequency and time synchronization between
	master and slave. And the accuracy can reach microsecond level.IEEE1588
IEEE1588 V2	V2 supports frequency synchronization and time synchronization.
	1588acr (adaptive clock recovery) refers to the master device supporting
	IEEE 1588v2 that encapsulates the clock information of local system into
	1588v2 message and transmits it to the slave device of the opposite
	through the third party network. The slave device obtains the time stamp
	from the 1588v2 message and recovers the clock to achive the frequency
	synchronization of the devices at both sides of PSN (packet switched
IEEE1588 ACR	network).
	By receiving the reference signal of macro cell to calculate
Sniffer synchronization	the time deviation between macro cell and itself so as to

1. The corresponding parameters of synchronization mode are shown in table

Synchronization mode	explain							
	calibrate	the	timing	and	achieve	the	purpose	of
	synchroniza	ation	with macr	ro cell	l.			
GPS/RGPS	The base s	tation	needs ex	ternal	GPS ante	nna		

Table 4 -8Synchronization mode

2. Synchronization configuration parameters are shown in table 4-9.

parameter	explain
SyncSwitchEnable	Synchronous source switch.Off by default.
	How to deal with synchronization failure in BTS
	 Ignore by default: ignore synchronization failure;
	 Restart: if the synchronization fails, the cell will be deleted and retried;
	 Reboot: if the synchronization fails, the BTS will be restarted and
SyncFailureHandling	retried;

4.3.3.1GPS synchronization

- 1. The base station needs external GPS antenna.
- 2. Set the synchronization mode to "GPS";
- 3. Configure frame migration according the operter plan, as shown in figure 4-24 and the calculation method of frame migration is shown in table4-10.

Information	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Management					
Security	C				
ACS	Sync Setung:				
Cell	CurrentSyncMode	Freedom			
Performance	SyncStatus	Undefined			
Synchronization	SuccessTime	0001-01-01700:00:007			
Network	Successimile				
Fault	SyncSwitchEnable	Enable			
Debug	SyncMode1	GPS •			
Upgrade	SyncMode2	Freedom 🔹			
Factory					
Access Control	SyncMode3	Freedom *			
Data Model	SyncFailureHandling	Ignored •			
	TimingCorrectionOffset	0			
	Submit				

Figure 4-24GPS synchronization configuration-

Table 4-10 frame migration parameter description-

The parameter name	instructions
TimingCorrectionOffset	Time synchronization frame offset, Chip(1/30.72us), valid for GNSS and IEEE1588V2.If the macro station is 700us ahead of the GPS frame header, then the frame offset should be 700*30.72=21504.(the macro station here is of the same frequency band)

- 4. After parameter configuration is completed, click "Submit";
- 5. Restart base station and perform GPS synchronization.
- 6. After the base station restarts, query the GPS synchronization status, as shown in the figure below.

	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Information					
Management	GPS Setting:				
Security	or o octang.				
ACS	GPSEquipped	1			
Cell	GPSReceiverOnMainChip	0			
Performance	ScanStatus	Indeterminate			
Network	ErrorDetails				
Fault	LastScanTime	0001-01-01T00:00:00Z			
Debug	LastSuccessfulScanTime	0001-01-01T00:00:00Z			
Upgrade	CurrentFix	0			
Factory	Latitude	0			
Access Control	Longitude	0			
Data Model	Elevation	0			
	SatellitesTracked	0			
	Stability	0			
	PositionUncertainty	0			

Figure 4-25 GPS synchronization status-

4.3.3.2 Configure IEEE1588 V2 synchronization

- 1. There are 1588 clock synchronization signals in the network environment of the base station.
- 2. 1588 PTPv2 is divided into two modes: multicast and unicast. The configuration of multicast mode is shown in figure 4-26.
 - Select "Ethernet" for Transport;
 - Role select "Slave";

Information	Management PTP1588v2/ACR			
Management	if using DTD1599v2/1599ACD to do synchroniza	tion plazco fill the DTD inform	ation	
Security	if using multicast PTP1588v2, leave MasterAddr	and SecGWServer empty.	auon.	
ACS				
Cell				
Performance				
Synchronization	Synchronization GPS	PTP/ACR	Sniffer	NTP/Time
Network				
Fault	PTP/ACR Setting:			
Debug				
Upgrade	Transport UDPv4 •			
Factory	Role Slave *			
Access Control	MactorAddr			
Data Model	MasterAdur			
	SecGWServer			
	Submit			

Figure 4-26 IEEE1588 V2 layer 2 multicast mode

- 3. IEEE1588 V2 unicast mode configuration, as shown in Figure 4-21.
 - Select "Ethernet" for transport;
 - Role select "slave";
 - Master addr fills in IP address of master clock;
 - In the PTP over IPSec scenario, you need to specify the security gateway address. Secgwserver fills in the security gateway IP address.

Information	Management	PTP1588v2/ACR			
Management	if using DTD1E00.0/1E0	OACD to do a mebronization	plance fill the DTD informs	ation	
Security	if using multicast PTP15	88v2, leave MasterAddr and	SecGWServer empty.	auon.	
ACS					
Cell					
Performance					
Synchronization	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Network					
Network Fault	PTP/ACR Setting:				
Network Fault Debug	PTP/ACR Setting:				
Network Fault Debug Upgrade	PTP/ACR Setting: Transport	Ethernet •			
Network Fault Debug Upgrade Factory	PTP/ACR Setting: Transport Role	Ethernet • Slave •			
Network Fault Debug Upgrade Factory kccess Control	PTP/ACR Setting: Transport Role	Ethernet • Slave •			
Network Fault Debug Upgrade Factory Access Control Data Model	PTP/ACR Setting: Transport Role MasterAddr	Ethernet • Slave • 192.168.100.40			

Figure 4-21 IEEE1588 layer V2 three unicast mode

4. Configure frame offset. See the table below for the value of frame offset.

Parameter name	explain
TimingCorrectionOffset	Time synchronization frame offset, in chip (1 / 30.72us), is effective for GNSS and ieee1588v2 modes.If the macro station is 700us ahead of the GPS frame head, then the frame offset should be

Parameter name	explain
	700 * 30.72 = 21504. (the macro station here is
	of the same frequency band)

Table 4 -10Frame offset parameter description

 After setting the above synchronization parameters, set the synchronization mode to "ptp1588", and click "submit" to submit;

▲note:

After modifying the synchronization mode, the base station takes effect by restarting to performs synchronization.

	you can choose the sync if you choose ptp1588 or	mode here. gps, then ntp disabled.			
Information					
Management					
Cell	Constant and S				
Debug	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
HeMS	Sync Setting:				
Network					
Performance	CurrentSyncMode	Sniffer			
Security	SyncStatus	Success			
Synchronization	SuccessTime	2019-11-13T09:18:25.174	łZ		
Upgrade	SyncSwitchEnable	Enable			
Data Model	SyncMode1	PTP1588 ¥			
	SyncMode2	Freedom 🔻			
	SyncMode3	Freedom 🔻			
	SyncFailureHandling	Ignored 🔻			

Figure 4-27 1588 ptpv2 synchronization configuration

6. After the base station is restarted, check the synchronization status.

4.3.3.3 Configure IEEE1588 ACR synchronization

- 1. IEEE1588 ACR synchronization parameter settings are shown in Figure 4-28.
 - Transport select "udpv4";
 - Role select "slave";
 - Master addr fills in 1588 ACR server address;
 - In the PTP over IPSec scenario, you need to specify the security gateway address.Secgwserver fills in the security gateway IP address.

Information	Management	PTP1588v2/ACR			
Management					
Security	if using PTP1588v2/1588ACR to do synchronization, please fill the PTP information. if using multicast PTP1588v2, leave MasterAddr and SecGWServer empty.				
ACS	-				
Cell					
Performance					
Synchronization	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Network					
Fault	PTP/ACR Setting:				
Debug					
Upgrade	Transport	UDPv4 V			
Factory	Role	Slave V			
Access Control	Role	Sidire -			
Data Model	MasterAddr				
	SecGWServer				
	Submit				

Figure 4-28 IEEE1588 ACR synchronization parameter setting

2. Set the synchronization mode to 1588 ACR, and click "submit" to submit, as shown in Figure 4-29;

▲note:

After modifying the synchronization mode, the base station takes effect by restarting to performs synchronization.

Information Management Security	you can choose the sync if you choose ptp1588 or	mode here. gps, then ntp disabled.			
Cell	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Performance					
Synchronization	Sync Setting:				
Network	CurrentSyncMode	Freedom			
Debug	SyncStatus	Undefined			
Upgrade	SuccessTime	0001-01-01T00:00:00Z			
Factory	SyncSwitchEnable	Enable			
Access Control Data Model	SyncMode1	1588ACR 🔻			
	SyncMode2	Freedom 🔻			
	SyncMode3	Freedom 🔻			
	SyncFailureHandling	Ignored 🔻			
	TimingCorrectionOffset	0			
	Submit				

Figure 4-29 IEEE1588 ACR synchronization mode setting

4.3.3.4Set air port synchronization

 Configure the frequency point of air port synchronization, as shown in Figure 4-30.

formation	Management	Sniffer			
anagement Cell Debug Factory	If using Sniffer to do sy Since Sniffer only adjus	nchronization, please fill th t the frequency, better add	e Sniffer information here. I one NTP server to fix syste	m time.	
HeMS Network	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Security Synchronization	Sniffer Setting:				
Upgrade	CheckRSPEnable	Enable			
ccess Control	CheckBWEnable	Enable			
ata Model	EARFCNDLLISt	100,1825			
	DonorBWThreshold	50 ¥			
	DonorRSPThreshold	9			
	SuccessRatType	Eutran			
	SuccessArfon	100			
		1			

Figure 4-30 setting the sniffer synchronization frequency point

2. Set the synchronization mode to "sniffer", and click "submit" to submit;

T&W					
	Management S	ync Mode			
Information Management Cell Debug	you can choose the sync if you choose ptp1588 or	mode here. gps, then ntp disabled.			
Factory HeMS	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Network Performance	Sync Setting:				
Security Synchronization	CurrentSyncMode	Sniffer			
Upgrade	SyncStatus	Success			
Access Control	SuccessTime	2019-11-13T09:18:25.174	Z		
Data Model	SyncSwitchEnable	Enable			
	SyncMode1	Sniffer 🔻			
	SyncMode2	Freedom *			
	SyncMode3	Freedom *			
	SyncFailureHandling	Ignored 🔻			
	TimingCorrectionOffset	0			
	Submit				

Figure 4-31 sniffer synchronization configuration



After modifying the synchronization mode, the base station takes effect by restarting to performs synchronization.

3. After the base station is restarted, check the air port synchronization status, as shown in Figure 4-32.

T&W					
	Management S	ync Mode			
Information Management Cell	you can choose the sync If you choose ptp1588 or	mode here. gps, then ntp disabled.			
Debug Factory HeMS	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Network Performance	Sync Setting:				
Security	CurrentSyncMode	Sniffer			
Upgrade	SyncStatus	Success			
Access Control	SuccessTime	2019-11-13T09:18:25.174	4Z		
Data Model	SyncSwitchEnable	Enable			
	SyncMode1	Sniffer 🔻			
	SyncMode2	Freedom 🔻			
	SyncMode3	Freedom 🔻			
	SyncFailureHandling	Ignored V			
	TimingCorrectionOffset	0			
	Submit				

Figure 4-32 air port synchronization status query

4. When the sniffer synchronization mode is selected, not all the scanned base stations can be used as synchronization targets, Device. Services. FAPService. 1. X_D837BE_SON. CNM. DonorRSPThresholdT he minimum threshold that can be used as the reference signal power of the synchronization target cell is defined. The default value is 9, as shown in Figure 4-33. See table 4-11 for parameter description.

magement Root Path: perice. search clear ess Control a Model B export B DB tree Device.Services.FAPService.1.X_D8378E_SON.CNM. B import X_D8378E_L2Para X_D8378E_PTP CheckSyncInfoEnable Enable boolean ternal X_D8378E_PTP X_D8378E_PTP CheckSyncInfoEnable Enable boolean X_D8378E_PTP X_D8378E_PTP CheckBWEnable Enable boolean X_D8378E_PTP X_D8378E_Serial Donor8WThreshold S0 • string X_D8378E_SoN CSON REN InterBandEnable Enable boolean Donorr Sync SelfConfig InterBandEnable Enable boolean B05A2FrameOffset -21504 int ANR PCI Device Sentres EAPservice 1 X_D8378E_SON (DM Donor (D))		DataModel Device				
DB tree Device.Services.FAPService.1.X_D8378E_SON.CNM. B import X_D8378E_L2Para X_D8378E_V22 evice X_D8378E_H2X0 ternal X_D8378E_FFXS X_D8378E_FFS X_D8378E_Son CSON X_D8378E_Son CSON RM Donor Sync Sync Sync Sync Sync SelfConfig TPM ANR PCI	mation agement ss Control	Root Path: Device.	search	clear		
B import X_D8378E_L2Para X_D8378E_V2 ternal X_D8378E_HEX0 X_D8378E_FFX X_D8378E_FFX X_D8378E_FTC X_D8378E_V1SynC X_D8378E_V1SynC X_D8378E_Serial X_	Model export	DB tree	Device.Services.FAP	Service.1.X_D837	7BE_SON.CNM.	
ternal X_D8378E_PTP X_D8378E_PFP X_D8378E_PTP X_D8378E_PTP X_D8378E_PTP X_D8378E_PTP X_D8378E_PTP X_D8378E_PTP DonorBWThreshold S0 • X_D8378E_Son Check8WEnable Enable boolean Check8WEnable Enable boolean DonorRSPThreshold 0 int(f=60:50)) Check8WEnable Enable boolean MR DonorRSPThreshold 0 int(f=60:50)) BassA2FrameOffset -21504 int B405A1FrameOffset -21504 int PCI Device Services F&PService 1 X_D8378E_SON (MM Donor (I))	import vice	X_D837BE_L2Para X_D837BE_X2	CheckSyncInfoEnable	Enable	boolean	
X_D8378E_FF X_D8378E_TFCS X_D8378E_TSS X_D8378E_Serial X_D8378E_Serial X_D8378E_SON CSON REM COMM REM COMM COMM COMM COMM Donor Sync: SelfConfig TPM ANR PCI Dedice_Services_E4PService_1_X_D8378E_SON CMM Dedice_Services_E4PService_1_X_D8378E_SON CMM Dedice_Services_E4PService_1_X_D8378E_SON CMM Dedice_Services_E4PService_1_X_D8378E_SON CMM	ternal	X_D837BE_PTP	CheckBWEnable	Enable	boolean	
X_D8378E_NISync X_D8378E_Serial X_D8378E_Serial X_D8378E_Serial X_D8378E_SON CSON REM DonorRSPThreshold DonorRSPThreshold DonorRSPThreshold DonorRSPThreshold DonorRSPThreshold Sync SelfConfig TPM ANiR PCI DonorE SPEctore 1X_D8378E_SON (1)		 X_D837BE_RF X_D837BE_TFCS 	DonorBWThreshold	50 🔻	string	
A Z_DB37BC_Serial A Z_DB37BC_Serial A Z_DB37BC_Serial A Z_DB37BC_Serial CNM CSON REM CNM Donor Sync SelfConfig TPM ANR PCI Double Conders F4PSerpter 1 X_DB37BE_SON (DM Donor (D)		X_D837BE_NISync	CheckRSPEnable	Enable	boolean	
REM InterBandEnable Ø Enable bolean ONM B38SA2FrameOffset 21504 int: Sync B40SA2FrameOffset 29640 int: TPM B40SA1FrameOffset -31248 int: PCI Denore Sendre EASSendre 1X_D832RE_SON (NM Denore (I))		X_D8378E_Senal X_D8378E_SON CSON	DonorRSPThreshold	9	int([-60:50])	
ONM B38SA2FrameOffset 21504 int: Sync B40SA2FrameOffset 29640 int: TPM B40SA1FrameOffset -31248 int: PCI Device Sentices EAPSentice 1X_D832RE_SON_CNM Device (J) CNM Device (J)		REM	InterBandEnable	C Enable	boolean	
Sync B40SA2FrameOffset -29640 int TPM B40SA1FrameOffset -31248 int ANR PCI Device Septices EAPService 1X_DR378F_SON_CNM Dopper (I)		CNM Donor	B38SA2FrameOffset	-21504	int	
TPM B40SA1FrameOffset -31248 int ANR PCI Device September 24 Description 1 X DR378F SON CNM Dopper (i)		Sync SelfConfig	B40SA2FrameOffset	-29640	int	
PCI Device Services EAPService 1 X_DR37RF_SON CNM Donor (i)		TPM ANR	B40SA1FrameOffset	-31248	int	
FHM		PCI FHM	Device.Services.FAPSe	rvice.1.X_D837BE_	SON.CNM.Donor.{i}.	

Figure 4-33 power threshold of synchronous target reference signal

Parameter name	Value range	explain
		The minimum threshold that can be used as
		the reference signal power of the
		synchronization target cell. The default
		value is 9, which generally corresponds to
		the reference signal power of the macro
		station. If you want to use the small base
		station as the synchronization target, you
		should set this parameter as the reference
		signal power of the corresponding small
DonorRSPThreshold	[-60:50]	base station, which is generally negative.

 ${\tt surface 4-11 Synchronous \ target \ reference \ power \ description}$

4.3.3.5Free mode

- 1. Set the synchronization mode to "freedom";
- 2. In free mode, the base station will not synchronize with any synchronous source, only rely on its own crystal oscillator to ensure frequency offset.

4.3.4Configure NTP service

Select "management synchronization" in the navigation bar to enter the NTP / time setting page, as shown in Figure 4-34 below.

	If using NTP to set syste If you set the system tir	em time, please enter at lea ne manually but NTP is enal	it one NTP server address pled, the system time will	i, be recovered to NTP time	when NTP sync successful.
Information	Timezone follows IEEE	1003.1 (POSIX). It should be	like "CST-8" for China Ti	me.	
Management	The offset in Timezone	is positive if the local time z	one is west of the Prime N	Meridian and negative if it i	is east.
Cell					
Debug	Synchronization	GPS	PTP/ACR	Sniffer	NTP/Time
Factory					
HeMS	NTP Setting:				
Network	-				
Performance	NtpStatus	Disabled (In Other Sync Mo	de)		
Security	NtpServer1	202.112.29.82	2.112.29.82		
Synchronization		L			
Upgrade	NtpServer2	202.108.6.95			
Access Control	NtpServer3	120.25.108.11			
Data Model	NtpServer4	182.92.12.11			
	NtpServer5	202.168.32.5			
	SecGWAddr				
	Submit				
	Time Setting:				
	Curr	ent System Time 2019-10-0	8T09:34:58Z		
	Set Time(format as abo	ove item display)			
	Submit				

Figure 4-34 NTP configuration

Configure NTP server parameters, as shown in 4-12.

Parameter name	explain
NTP Server	The domain name or IP address of the NTP server.(multiple can be
	configured at the same time)

surface4-12 NTP server parameter description

4.4Configure LTE parameters

4.4.1Configure neighborhood parameters

4.4.1.1 Neighbor cell is found by air port listening mode

The base station has the self discovery and self configuration functions of the intra frequency neighborhood, inter frequency neighborhood and inter system neighborhood based on air port listening. It supports the self discovery and self configuration functions of the measurement frequency points based on air port listening.

1. Enable neighborhood self-discovery and frequency point self-measurement functions based on air port interception, as shown in Figure 4-35.

Data model path:

Device. Services. FAPS ervice. 1. FAPC on trol. LTE. SelfConfig. SONC on figParam. SnifferFor ANREn able

Device. Services. FAPS ervice. 1. FAPC ontrol. LTE. SelfConfig. SONC on figParam. SnifferForMeasurement Enable

ſ & ₩				
formation	Root Path: Device.	search clear		
lanagement	DB tree	Device.Services.FAPService.1.FAPControl.LTE.Se	elfConfig.SONConfigPa	ram.
ccess Control	Device Services	LTESnifferChannelList		string(64[0:65535])
DB export	FAPService FAPService.1	GERANSnifferEnable	Enable	boolean
Device	A FAPControl A LTE	GERANSnifferChannelList	Enable	string(256[0:65535])
Internal	 SelfConfig SONConfigParam 	UTRANSnifferChannelList		string(256[0:65535])
	Gateway X2IpAddrMapInfo	MROEnable	C Enable	boolean
	AccessMgmt CellConfig PEM	X_D837BE_MROInterFreqEnable SHEnable	✓ Enable	boolean
	 Transport X_D837BE_L2Para 	SyncMode	Sniffer v	string
	X_D837BE_X2 > X_D837BE_HEX0	X_D837BE_PeriodicSnifferInterval	0	unsignedInt
	 X_D837BE_PTP X_D837BE_RF 	X_D837BE_SnifferForANREnable	Enable	boolean
	X_D837BE_TFCS X_0837BE_NISync X_0837BE_Social	X_D837BE_SnifferForMeasurementEnable X_D837BE_LTESnifferRSRPThresholdForANR	-95	boolean int([-140:-44])
	X_D83/BE_Senal V_D837BE_COM	•		•

Figure 4-35 function switch of neighbor self discovery and frequency point self measurement based on air port listening

Parameter	description	is	shown	in	table	4-13.
r ar amo cor	accourperon	T O	0110 011		Capto	I I O ·

Parameter name	explain
SnifferForANREnable	Neighborhood self-discovery function switch based on air port interception. (default enable)
SnifferForMeasurementEnable	Frequency point self-measurement function switch based on air port interception. (default enable)

Table 4-13 parameter description

(1) Add LTE neighbor by air port listening

1) Sets the LTE band or frequency point .

nagement	Datamodel Device			
s Control	Root Path: Device.	search	clear	
el				
port	DB tree	Device.Services.FAPServ	ice.1.REM.LTE.	
port	•			
ce nal	Device Services FAPService	InServiceHandling	Immediate *	string
	 FAPService.1 Comphilities 	ScanOnBoot	Enable	boolean
	FAPControl	ScanPeriodically	Enable	boolean
	 AccessMgmt CellConfig 	PeriodicInterval	0	unsignedInt
	REM UMTS	PeriodicTime	0001-01-01T00:00:002	dateTime
	 WCDMA X D837BE TDSCDMA 	REMPLMNList		string(32)
	GSM	REMBandList		string(32)
	Cell	EUTRACarrierARFCNDLList	1750	string(64[0:262143])
	CarrierMeas Transport	ScanTimeout	0	unsignedInt
	X_D837BE_L2Para X_D837BE_X2	ScanStatus	Indeterminate •	string
	 X_D837BE_HEX0 X_D837BE_PTP 	ErrorDetails	NULL	string
	X_D837BE_RF	LastScanTime	0001-01-01700-00-007	dateTime





Figure 4-37 setting LTE frequency points for listening

Parameter name	explain				
ScanOnBoot	function switch,				
LTESnifferFreqBandList	Scanning frequency points, common frequency points include: 1850,1825,100				

Parameter name	explain
LTESnifferChannelList	Frequency band scanned.Full band scanning will takes a long time so it need to be configured as required.

surface4-14 configuration description of LTE adjacent area scanning parameters

2) Check the scanning results of air port listening, as shown in figure 4-38.

Data model path: Device. Services. FAPService. 1. REM. LTE. Cell

Information	DataModel Device				
Management					
Access Control	Root Path: Device.	search		clear	
Data Model					
DB export	DB tree	Device.Services.FA	Service.1	.REM.LTE.Cell.1.RF.	
DB import	- Partie				*
Device Internal	Service Service FAPService	EUTRACarrierARFCN	100	unsignedInt([0:262143])	
	 FAPService.1 Capabilities 	PhyCellID	402	unsignedInt([0:503])	
	FAPControl AccessMamt	RSRP	-64	int([-140:-44])	
	CellConfig	RSRQ	0	int([-240:0])	
	▲ UMTS	RSSI	0	int([-110:-19])	
		submit	drop		

Figure 4-38 viewing the scanning results of air port listening

3) View the neighbor cells added by air port listening.

The neighbor cells discovered through the air port listening mode will be added to the neighbor relationship table of the base station.

Data model path:

Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborListInUse.

⚠ note:

Some of the scanned LTE cells are not added to the neighbor relationship table of the base station due to weak RSRP of the scanned LTE cells. You can add these cells to the neighbor relationship table by properly adjusting the threshold (LTESnifferRSRPThresholdForANR), see table 4-15.

Data model path:

Device.Services.FAPService.1.FAPControl.LTE.SelfConfig.SONConfigParam.

LTESnifferRSRPThresholdForANR

	Value	
Parameter name	range	explain
		The RPSR threshold that LTE adjacent
LTESnifferRSRPThresholdForANR	[-140:-44]	cell scanned can be used as neighbor

	cell. The default value is - 95, which can be adjusted according to the actual environment.
--	---

surface4-15Whether the LTE neighbor listening is the neighbor of the base station (2) Add GSM neighbor cell by air port listening mode

1) Enable GSM air port listening function

2) Set parameters for GSM listening

	DB tree	Device.Services.FAPService.1.FAPControl	ConfigParam.		
Information	▲ Device	PRACHConfigEnable	Enable		boolean
Management	Services FAPService	LTESnifferFreqBandList			string(64)
Access Control	 FAPService.1 Capabilities 	LTESnifferChannelList			string(64[0:65535])
Data Model	 FAPControl 	GERANSnifferEnable	✓ Enable		boolean
DB export	 LTE SelfConfig 	GERANSnifferChannelList	5,35,36		string(256[0:65535])
Device	SONConfigParam	UTRANSnifferEnable	Enable		boolean
Internal	X2IpAddrMapInfo	UTRANSnifferChannelList			string(256[0:65535])

Figure 4-39 setting the GSM frequency point for listening

Parameter name	explain
Device.Services.FAPService.1.REM.UMTS.GSM. ScanOnBoot	GSM air port listening switch.0:
	disable; 1: enabled
Device.Services.FAPService.1.REM.UMTS.GSM.REMPLMNList	Enter the operators PLMN, and
	the BTS will filter the
	scanned neighbor cell and only
	keep neighbor cell which PLMN
	belonging to the remplmnlist.
Device.Services.FAPService.1.REM.UMTS.GSM.REMBandList	Generally, the scanned GSM
	frequency band does not need
	to be scanned, so this item
	can be left blank.
Device.Services.FAPService.1.REM.UMTS.GSM. ARFCNList	GSM frequency point scanned.

Table 4 -16 configuration description of GSM adjacent area scanning parameters

3) Check the scan results of GSM cell, as shown in figure 4-40.

Data model path:Device.Services.FAPService.1.REM.UMTS.GSM.Cell.

Information	DataModel Device	
Management		
Access Control	Root Path: Device.	search clear
Data Model		
DB export	DB tree	Device.Services.FAPService.1.REM.UMTS.GSM.Cell.{i}.
DB import		
Device	Capabilities FAPControl	
Internal	AccessMgmt CellConfig REM UMTS VCDMA V_D8378E_TDSCDMA Cell LTE Transport X_D8378E_L2Para X_D8378E_X2 V_D8378E_K2	add delete

Figure 4-40gsm cell scan results

4) Add GSM neighbor through air port listening.

The neighbor discovered through the air port listening mode will be added to the neighbor list of the base station.

Data model path: Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborListInUse.InterRA TCell.GSM.

▲note:

Some scanned cells are not added to the GSM neighborhood table of the base station due to weak RSSI of the scanned cells. In this case, these cells can be added to the neighborhood table by properly adjusting the threshold value, as shown in table 4-17.

Data model path:

Device.Services.FAPService.1.FAPControl.LTE.SelfConfig.SONConfigParam.GER ANSnifferRSSIThresholdForANR

	Value	
Parameter name	range	explain
		The RSSI threshold that GSM adjacent
		cell scanned can be used as neighbor
		cell . The default value is - 95, which
		can be adjusted according to the actual
GERANSnifferRSSIThresholdForANR	[-110:48]	environment.

surface4-17 The threshold that BS add a scanned cell to the neighbor list

4.4.1.2Manually configure adjacent area

When you manually configure the neighbor cell, you need to configure the candidate neighbor cell list and enable the corresponding neighbor cell; the

enabled neighbor cell information will be added to the neighbor cell relationship table of the base station as an effective neighbor cell.

1. Manual configuration of neighborhood is achieved by setting the list of neighborhood.

Data model path:

Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborList.

2. The enabled neighbor in the neighbor list will be added to the neighbor relationship table of the base station.

Data model path:

Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborListInUse.

(1) Manually configure LTE neighborhood

1) Manually configure the neighbor list;

Data model path:

Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborList.

Assess Control				
Access Control	Root Path: Device.	search clear		
Data Model				
DB export	DB tree	Device.Services.FAPService	.1.CellConfig.LTE.RAN.N	eighborList.LTECell.1.
DB import				
Device	CellRestriction X D0378E ParticeEerMOSignalling			
Internal	X D837BE_BarringForMOData	Enable	C Enable	boolean
	X_D837BE_BarringForMMTELVoice	Alias	cpe-LTECell1	string(64)
	X_D837BE_BarringForCSFB	MustInclude	CENable	boolean
	 X_D837BE_Congestion Mobility 	PLMNID	00110	string(6)
	IdleMode ConnMode	CID	513	unsignedInt([1:268435455])
	X_D8378E_SPID Neinbhod ist	EUTRACarrierARFCN	1900	unsignedInt([0:65535])
	 LTECell 	PhyCellID	2	unsignedInt([0:503])
	X_D8378E_PLMNList2	QOffset	0 *	int
	InterRATCell NeighborListInUse	CIO	0 *	int
	LTECell InterRATCell	RSTxPower	0	int([-60:50])
	VoLTE VoLTEParam	Blacklisted	Enable	boolean
	CAParam X D8378E ACCParam	TAC	10	unsignedInt([0:65535])
	X D837BE LBParam	EnhTimo		uncicopatiot/(0.17)

Figure 4-41 manually adding LTE neighborhood

2) After setting the LTE neighbor information, select "submit" to submit;

Parameter name	explain			
	Adjacent enable switch			
The Enable	0: invalid neighborhood;1: effective neighborhood			
Alias	Keep the default			
	Whether to include the neighbor table switch			
	0: not added to neighborhood relational table;1: is added to the			
MustInclude	neighborhood relationship table			
PLMNID	Adjacent regions PLMN ID			

3) See table 4-18 for main parameters.

Parameter name	explain		
	Neighborhood community ID,		
	• When the neighborhood type is Home, the length is 28 bits		
CID	• When the neighborhood type is Marco, the length is 20 bits (that is, eNodeB ID)		
EUTRACarrierARFCN	Neighborhood absolute frequency		
PhyCeIIID	Adjacent regions PCI		
QOffset	Neighborhood migration, Idle mode cell re - selection, the larger the easier to re - selection to this cell		
The CIO	Neighborhood offset, connection mode cell switching, the larger the easier to switch to this cell		
RSTxPower	Reference signal power of adjacent region		
Blacklisted	Turns off by default. If enabled, this neighborhood will not be a switching target for UE		
TAC	Adjacent regions TAC		
EnbType	0: macro station, 1: small station		
X_18396E_NoRemove	Disabled by default. If enabled, this neighborhood will not be automatically removed from the InUse list		
	Default off.		
X_18396E_NoX2	 If enabled, the base station will not establish an X2 connection with this neighborhood 		
	Default off.		
X_18396E_NoX2HO	• If enabled, the base station will not be switched with the adjacent area via the X2 interface		
X_18396E_AccessMode	Neighborhood Access mode, default is Open Access		
X_18396E_CSGID	CSG ID of adjacent area, default does not need to be filled in		
X_18396E_BlacklistedSIB	This is turned off by default, corresponding to BlackCellList in SIB4 or 5		
X_18396E_AntennaPortsCount	Number of adjacent antenna ports		
X_18396E_DLBandwidth	Adjacent downlink bandwidth		
X_18396E_SubFrameAssignment	Neighborhood sub-frame ratio		
X_18396E_SpecialSubframePatterns	Neighborhood special subframe mode		

surface4-18 LTE adjacent area parameter configuration description

(2) Manual configuration of 3G adjacent area

1) Manual configuration of 3G neighbor list

Data model path:

 $Device. Services. {\tt FAPService. 1. Cell Config. LTE. RAN. Neighbor List. Inter {\tt RATCell. UMTS}.$

T&W					
	DataModel Device				
information Management	Root Path: Device.Services.FAPService.1.CelConfig.LTE.R search clea				
ata Model	DB tree	Device.Services.FAPS	ervice.1.CellCon	fig.LTE.RAN.NeighborList.Inter	RATCell.UMTS.1.
DB export	* Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborList.InterRATCell.UMTS	MustInclude	Inable	boolean	
DB import	UMTS.1	PLMNID	00110	string(6)	
nternal		RNCID	0	unsignedInt([0:65535])	
		CID	1	unsignedInt([0:65535])	
		LAC	0	unsignedInt([0:65535])	
		RAC	0	unsignedInt([0:255])	
		URA	0	unsignedInt([0:65535])	
		UARFCNUL	9763	unsignedInt([0:16383])	
		UARFCNDL	10713	unsignedInt([0:16383])	
		PCPICHScramblingCode	0	unsignedInt([0:511])	
		PCPICHTxPower	0	int([-100:500])	
		submit	drop		
	4	4			

Figure 4-42 add 3G neighbor manually

2) Select "submit" to submit after setting 3G neighborhood information;

3) See table 4-19 b	elow for the	description of	main parame	ters.
5/ 5CC (USIC + 15 5		acourption of	mann paranne	

Parameter name	explain		
Enable	Item enable switch, enable required		
Alias	Keep default		
MustInclude	Mandatory include switch, enable required		
PLMNID	Adjacent PLMN ID		
RNCID	Neighbor RNC ID		
Parameter name	explain		
CID	Neighborhood C-ID		
LAC	Lac of adjacent area		
RAC	Adjacent area RAC		
URA	Neighborhood URA		
UARFCNUL	Uplink frequency point		
UARFCNDL	Downlink frequency point		
PCPICHScramblingCode	Scrambling code		
	Pcpich transmit power, multiplied by 0.1 is the actual value, in		
PCPICHTxPower	dBm		

 $\mbox{surface4-19}$ UMTS adjacent area parameter configuration description

(3) Manually configure GSM neighborhood

1) Manual configuration of GSM neighbor list

Data model path:

Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborList.InterRATCell.GSM.

DataModel Device				
Root Path: Device.Services.FAPService.1.CellConfig.LTE.R search	clear			
DB tree		Device.Services.FAPS	ervice.1.CellConfi	g.LTE.RAN.NeighborList.In
Device.Services.FAPService.1.CellConfig.LTE.RAN.NeighborList.InterRATCell.GSM	^			
GSM.1		Enable	Enable	boolean
		Alias	cpe-GSM1	string(64)
		MustInclude	🗷 Enable	boolean
		PLMNID	00110	string(6)
		LAC	0	unsignedInt([0:65535])
		BSIC	0	unsignedInt([0:255])
		СІ	0	unsignedInt([0:65535])
		BandIndicator	GSM850 ¥	string
		BCCHARFCN	0	unsignedInt([0:1023])
		X_D837BE_RACPresent	Enable	boolean
		RAC	0	unsignedInt([0:255])

Figure 4-43 manual addition of GSM neighborhood

2) Select "submit" to submit after setting the adjacent area information of GSM;

Parameter name	explain
Enable	Item enable switch, enable required
Alias	Keep default
MustInclude	Mandatory include switch, enable required
PLMNID	Adjacent PLMN ID
LAC	Lac of adjacent area
BSIC	Bit 7:6 - not used ("00") Bit 5:3 - NCC (PLMN Color Code) Bit 2:0 - BCC (BS color code)
CI	Cell ID of adjacent area
BandIndicator	Adjacent band indication
Parameter name	explain
BCCHARFCN	Adjacent frequency point
RAC	Adjacent area RAC

 ${\tt surface4-20}\ {\tt GSM}$ adjacent area parameter configuration description

4.4.2Configure mobility parameters

1. The base station handover decision mainly uses the following events:

A1 event: indicates that the signal quality of the service community is higher than a certain threshold. When UE reports this event, the base station stops the measurement of different frequency/different system;

A2 event: indicates that the signal quality of the service community is below a certain threshold. When UE reports this event, the base station starts the measurement of different frequency/different system.

A3 event: indicates that the quality of the same frequency/different frequency neighborhood is higher than that of the service community. When UE reports this event, the base station initiates the same frequency/different frequency switching request.

B1 event: indicates that the quality of the neighboring area of the different system is higher than a certain threshold. When UE reports this event, the base station starts the eSRVCC switching request based on the uplinking service quality.

B2 event: it means that the quality of the service community is below a certain threshold and the quality of the neighboring area of the different system is above a certain threshold. When UE reports this event, the base station initiates the overcoverbased eSRVCC switching request.

2. The data model configuration item corresponding to the above events is:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. EUTRA. A1MeasureCtrl

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. EUTRA. A2MeasureCtrl

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. EUTRA. A3MeasureCtrl

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. IRAT. B1MeasureCtrl

Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. IRAT. B2MeasureCtrl

Date model path:

Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A2MeasureCtrl Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A3MeasureCtrl Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.IRAT.B1MeasureCtrl Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.IRAT.B1MeasureCtrl

4.4.2.1Start inter frequency / inter system measurement

 The measurement of the different frequency / different system is triggered by the A2 event, as shown in figure 4-44. There are 11 groups of A2 events in total, which need to be focused on 1 to 7, which are respectively used in different scenarios:

A2measurerctr1: different frequency measurement A2measurecrl. 2: 3G measurement (LTE data service exists) A2measurecrl.3: 2G measurement (LTE data service exists) A2measurecrl. 4: 3G blind handover

A2measurecrl.5: 2G blind handover A2measurecrl. 6: 3G measurement (LTE voice service exists) A2measurecrl.7: 2G measurement (LTE voice service exists)



Figure 4-44 A2 event

2. Regarding the parameter configuration of A2 event, take the common inter frequency measurement scenario as an example.

A2 event will be triggered when UE's measurement results of primary plot are less than a2thresholdrsrp-hysteresis (both are actual converted values, as shown in figure 4-45, 45-140-2*0.5=-96 dBm) and are maintained longer than TimeToTrigger, and report continuously with ReportInterval.**Error! Reference source not found.**See table 311 for parameter description.

tree		Device.Services.F	APService.1.CellConfig.LT	E.RAN.Mobility.ConnMod
MeasureCtrl A1MeasureCtrl A2MeasureCtrl	•	Enable	✓ Enable	boolean
A2MeasureCtrl.1		A2ThresholdRSRP	45	unsignedInt([0:97])
A2MeasureCtrl.2 A2MeasureCtrl.3 A2MeasureCtrl.4		A2ThresholdRSRQ	10	unsignedInt([0:34])
A2MeasureCtrl.5		Hysteresis	2	unsignedInt([0:30])
AzmeasureCtrl.7 A2MeasureCtrl.7 A2MeasureCtrl.8 A2MeasureCtrl.9	1	MaxReportCells	4	unsignedInt([1:8])
	4	MeasurePurpose	1	unsignedInt([1:100])
A2MeasureCtrl.10 A2MeasureCtrl.11		ReportAmount	0 •	unsignedInt
 A3MeasureCtrl A4MeasureCtrl 		ReportInterval	10240 •	unsignedInt
 A5MeasureCtrl PeriodMeasCtrl 		ReportQuantity	both	* string
 IRAT B1MeasureCtrl 		TimeToTrigger	40 •	unsignedInt
 B2MeasureCtrl GERAN 		TriggerQuantity	RSRP *	string

Figure 4-45 A2 event parameters

Parameter name	explain
The Enable	

A2ThresholdRSRP	A2 RSRP trigger threshold, after subtracting 140, is the actual value (in dBm)
A2ThresholdRSRQ	
Hysteresis	Trigger hysteresis, multiplied by 0.5, is the actual value (in unit dB)
MaxReportCells	
MeasurePurpose	
ReportAmount	Number of reports, 0 is infinite
ReportInterval	Report interval, unit ms
ReportQuantity	Report the amount
Parameter name	explain
TimeToTrigger	Trigger time , unit ms
TriggerQuantity	Trigger quantity, rsrp by default

surface4-21 A2 event configuration description

4.4.2.2Stop the measurement of inter frequency / intra system

 The BTS stops the measurement of inter frequency / inter system by triggering A1 event, as shown in Figure 4-46. There are 11 groups of A1 events in total, which need to be focused on 1 to 5, respectively for different scenarios:

A1measurecrl. 1: inter frequency measurement A1measurecrl. 2: 3G measurement (LTE data service exists) A1measurecrl.3: 2G measurement (LTE data service exists) A1measurecrl.4: 3G measurement (with LTE voice service) A1measurecrl.5: 2G measurement (LTE voice service exists)

DB tree	Device. Services. FAPS ervice. 1. Cell Config. LTE. RAN. Mobility. ConnMode. EUTRA. A1 Measure Ctrl.
	(1).
MeasureCtrl	
A1MeasureCtrl	Device Centices EADCentics 1 CellConfis LTE DAM Mobility ConsMade ELITRA A1MassureCtrd 1
A1MeasureCtrl.1	Device.Services.rAPService.1.Celiconing.c1E.RAN.Mobility.Confinidae.e01RA.A1Measurecth.1.
A1MeasureCtrl.2	Oevice.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.2.
A1MeasureCtrl.3	Device Services EADCervice 1 CellCerfie LTE BAN Mobility Commade ELITRA AtManeursCel 2
A1MeasureCtrl.4	Device.Services.rAPService.1.Celiconing.c1E.RAN.Mobility.Confinitiode.E01RA.A1Measurecth.5.
A1MeasureCtrl.5	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.4.
A1MeasureCtrl.6	
A1MeasureCtrl.7	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.5.
A1MeasureCtrl.8	Device Services EAPService 1 CellConfig LTE RAN Mobility ConnMode ELITRA A1MeasureCtrl 6
A1MeasureCtrl.9	
A1MeasureCtrl.10	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.7.
A1MeasureCtrl.11	
A2MeasureCtrl	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.8.
A3MeasureCtrl	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.9.
A4MeasureCtrl	
A5MeasureCtrl	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.10.
PeriodMeasCtrl	Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode.EUTRA.A1MeasureCtrl.11.
IRAT	



2. For the parameter configuration of A1 event, take the commonly used scene of inter frequency measurement as an example.

When the measurement result of UE to the server cell is greater than A1 thresholdrsrp + hysteresis (both are converted actual values, take figure 4-47 as an example, 55-140 + 2 * 0.5 = -84 DBM), and the maintain time is greater than timetotrigger, A1 event will be triggered, and the A1 report will be continuously reported at the interval of reportinterval. See table 4-22 for parameter description.

	Root Path: Device.		search	clear	
formation					
anagement	DB tree		Device.Services.F	APService.1.CellConfig.	TE.RAN.Mobility.ConnMode.EUTRA.A1MeasureC
cess Control	X DR37RE Concestion				
ta Model	 Mobility IdleMode 		Enable	✓ Enable	boolean
OB export OB import	ConnMode EITERA		A1ThresholdRSRP	55	unsignedInt([0:97])
Device	MeasureCtrl		A1ThresholdRSRQ	20	unsignedInt([0:34])
nternal	A1MeasureCtrl	-11	Hysteresis	2	unsignedInt([0:30])
	A1MeasureCtrl.2 A1MeasureCtrl.3		MaxReportCells	4	unsignedInt([1:8])
	A1MeasureCtrl.4 A1MeasureCtrl.5		MeasurePurpose	1	unsignedInt([1:100])
	A1MeasureCtrl.6		ReportAmount	0	unsignedInt
	A1MeasureCtrl.8		ReportInterval	10240 🔻	unsignedInt
	A1MeasureCtrl.10		ReportQuantity	both •	string
	A1MeasureCtrl.11 A1MeasureCtrl.12		TimeToTrigger	40 🔻	unsignedInt
	 A2MeasureCtrl A3MeasureCtrl 		TriggerQuantity	RSRP T	string

Figure 4-47 A1 event parameters

Parameter name	explain
The Enable	
	A1 RSRP trigger threshold, which is the actual
A1ThresholdRSRP	value (in dBm) after subtraction of 140
A1ThresholdRSRQ	
	Trigger hysteresis, multiplied by 0.5, is the actual
Hysteresis	value (in unit dB)
MaxReportCells	
MeasurePurpose	
ReportAmount	Number of reports, 0 is infinite
ReportInterval	Report interval, in ms
ReportQuantity	Report the amount
TimeToTrigger	Trigger time in ms
TriggerQuantity	Trigger, default to RSRP

表 4-22 A1 事件配置说明



Note: a2thresholdrsrp-hysteresis should be lower than a1thresholdrsrp-hysteresis, otherwise UE will repeatedly report A1, A2 events.

4.4.2.3LTE intra/inter frequency handover

1. LTE same-frequency/different-frequency switching is triggered by A3 events. As shown in figure 4-48, there are two groups of configurations of A3 events, which are used in different scenarios:

A3MeasureCtrl.1: measurement of same frequency

A3MeasureCtrl.2: measurement of different frequencies



Figure 4-48 A3 event

2. The trigger condition of A3 is: where Mn and Mp are the measurement results of UE on adjacent area and main area respectively, Ofn and Ofp are frequency offset of adjacent area and main area respectively (default is 0), Ocn and Ocp are offset of adjacent area and main respectively (default is 0), Off is A3Offset, Hys area is Hysteresis. Mn + Ofn + Ocn - Hys > Mp + Ofp + Ocp + Off Therefore, when the measurement results of UE on the adjacent area are larger than A3Offset + Hysteresis when compared with the main plot (both are actual values after conversion, as shown in FIG. 4-43, 4*0.5+2*0.5=3dB) and the maintenance time is longer than TimeToTrigger, A3 events will be triggered and report continuously with ReportInterval as interval. Error! Reference source not found. See table 313 for parameter description.



Figure 4-49 A3 event parameters

参数名称	说明
The Enable	
A3Offset	A3 offset, multiplied by 0.5, is the actual value (in dB).
	Trigger hysteresis, multiplied by 0.5, is the actual value (in unit
Hysteresis	dB)
MaxReportCells	
MeasurePurpose	
ReportAmount	Number of reports, 0 is infinite
ReportOnLeave	
ReportInterval	Report interval, in ms
ReportQuantity	Report the amount
TimeToTrigger	Trigger time in ms

table4-23 A3 event

4.2.3 SONRelated configuration

The son function parameters are located in the following nodes: Device.Services.FAPService.1.FAPControl.LTE.SelfConfig.SONConfigParam.

Please refer to table 4-24 for parameter descriptions.

Parameter name Value range explai		explain	
	Distributed		
SUNSysMode	Centralized	Son system mode	
SONWorkMode	Free Control	Son mode setting	
PCIOptEnable	-	PCI self optimization algorithm switch	
PCIReconfigWaitTime	-	PCI reset wait timer	
		List of candidate frequency	
	64[0:262143]	points	
	64[0:503]	Candidate PCI list	
ANREnable	-	Anr algorithm main switch	
ANRInterFegEnable	_	E-utran different frequency	
		Geran different system ANR	
ANRGERANEnable	-	algorithm switch	
ANRUTRANEnable	-	UTRAN differentsystem ANR algorithm switch	
		Frequency point self	
ARECNEnable	_	configuration algorithm	
		Maximum number of LTE	
MaxLTENeighbourCellNum	-	neighbors	
MaxUTRANNeighbourCellNum	-	Maximum number of UTRAN neighbors	
		Maximum number of Gen	
MaxGRANNeighbourCellNum	-	neighbors	
ReSynCellEnable	-	switch	
PowerEnable	-	Power self configuration algorithm switch	
		Root sequence self	
RootSeqConfigEnable	-	configuration switch	
PRACHConfigEnable	-	configuration switch	
LTESnifferFregBandList	64	LTE listening band list	
	64	LTE listoning froquency list	
	04		
GERANSHITEIEITADIe	-	GERAN listen ehannel	
GERANSnifferChannell ist	256	number list	
	_	LITRAN listening enable	
		UTRAN listening channel	
UTRANSnifferChannelList	256	number list	
MROEnable	-	Neighborhood robust optimization function switch	
SHEnable	-	Self healing function switch	
	GNSS		
	IEEE1588V2	Clock synchronization	
SyncMode	Sniffer Freedom	mode, this parameter is	
PeriodicSnifferInterval	-	Cycle listening interval, 0 means cycle listening is off	

		Neighborhood self-
		discovery function switch
		based on air port
SnifferForANREnable	-	interception. (default enable)
		Frequency point self-
		measurement function switch
		based on air port
SnifferForMeasurementEnable	-	interception. (default enable)
		The RPSR threshold that
		LTE adjacent cell scanned
		can be used as neighbor
		cell. The default value is
		- 95, which can be adjusted
		according to the actual
LTESnifferRSRPThresholdForANR	[-140:-44]	environment.
		The LTE neighbor scanned
		can be used as the rsrp
	[140: 44]	threshold of the
	[-14044]	
		neighborhood can be used
		as the RSCP threshold of
		the base station
UTRANSnifferRSCPThresholdForANR	[-120:-25]	neighborhood
		The scanned UTRAN
		The scanned UTRAN neighborhood can be used
		The scanned UTRAN neighborhood can be used as the RSCP threshold of
	[420: 25]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station
UTRANSnifferRSCPThresholdForMeasurement	[-120:-25]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object
UTRANSnifferRSCPThresholdForMeasurement	[-120:-25]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gap can be used as
UTRANSnifferRSCPThresholdForMeasurement	[-120:-25]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the
UTRANSnifferRSCPThresholdForMeasurement	[-120:-25]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base
UTRANSnifferRSCPThresholdForMeasurement	[-120:-25]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR	[-120:-25] [-110:48]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR	[-120:-25] [-110:48]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR	[-120:-25] [-110:48]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR	[-120:-25]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement	[-120:-25] [-110:48] [-110:48]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement	[-120:-25] [-110:48] [-110:48]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement MLBEnable	[-120:-25] [-110:48] [-110:48]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object Mobile load balancing switch
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement MLBEnable	[-120:-25] [-110:48] [-110:48]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object Mobile load balancing switch
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement MLBEnable MLBTimerLength	[-120:-25] [-110:48] [-110:48] 	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object Mobile load balancing switch
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement MLBEnable MLBTimerLength	[-120:-25] [-110:48] [-110:48] 	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object Mobile load balancing switch Mobile load balancing timer duration
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement MLBEnable MLBTimerLength MLBThreshold	[-120:-25] [-110:48] [-110:48] [0:100]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object Mobile load balancing switch Mobile load balancing timer duration
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement MLBEnable MLBTimerLength MLBThreshold	[-120:-25] [-110:48] [-110:48] - - [0:100]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object Mobile load balancing switch Mobile load balancing timer duration Mobility load balancing UE
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement MLBEnable MLBTimerLength MLBThreshold MLBUEProtectTimerLength	[-120:-25] [-110:48] [-110:48] [0:100] _	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object Mobile load balancing timer duration Mobile load balancing timer duration Mobile load balancing UE protection timer duration
UTRANSnifferRSCPThresholdForMeasurement GERANSnifferRSSIThresholdForANR GERANSnifferRSSIThresholdForMeasurement MLBEnable MLBTimerLength MLBThreshold MLBUEProtectTimerLength MLBUEProtectTimerLength	[-120:-25] [-110:48] [-110:48] [0:100] [0:20]	The scanned UTRAN neighborhood can be used as the RSCP threshold of the base station measurement object The scanned adjacent area of the gen can be used as the RSSI threshold of the adjacent area of the base station The scanned adjacent area of the gen can be used as the RSSI threshold of the base station measurement object Mobile load balancing switch Mobile load balancing timer duration Mobility load balancing UE protection timer duration Mobility load balancing UE

		When a cell is deleted, the timer duration of the cell reference signal power is reduced.The purpose is to reduce the power of cell reference signal and let UE switch out. This function is
ReduceRspTimerLength	[1:255]	not used at present
		Number of times to reduce
		cell reference power, 0
ReduceRspTimes	[0:255]	means disabled
		Step to reduce cell
ReduceRspStep	[1:255]	reference power, DB

surface4-24 son parameter configuration description

Anote:

In general, these parameters do not need to be changed. Please keep the default value except for the parameters related to neighbor listening.

4.5Configure system parameters

4.5.1Software version upgrade

Select "management" upgrade in the navigation bar to enter the version upgrade page, as shown in figure 4-50.

Information	Management Firmware Upgrade		
Management			
Cell	Upload a firmware package to upgrade Femto cell.		
Debug	During firmware upgrade, Femto cell will be reboot.		
Factory			
HeMS	Firmware Upgrade		
Network			
Performance	Software version:		
Security	Software version:		
Synchronization	Firmware V1.0		
• Upgrade	Platform FSM9055.PX.3.0.3(r3.3p0.0.374.1),FSM9055.DV.3.0.3(r3.3)		
Access Control			
Data Model			
	Firmware upgrade: 适爆文件 未选择任何文件		
	Submit		

chart4–50Version upgrade

Software upgrade steps:

- 1. Click Select file, select upgrade file and upload to base station.
- 2. Click submit to upgrade.

- 3. The base station is restarted and upgraded, waiting for about 3-5min.After the upgrade is successful, the page will prompt accordingly.
- 4. The upgraded version can be confirmed through the "information" page.

4.5.2System file backup

4.5.2.1Import / export profile

1. Select "data model" in the navigation bar to enter the DB import / export page, as shown in figure 4-51

	Information	DataModel Export DB Files		
	Management			
Access Control		Current DR Eiles		
	Data Model	Current DD Files		
•	DB export	Device.xml	Export	
	DB import	Internal yml		
	Device	Internal.XIII	Export	
	Internal	SON_DM.xml	Export	

Figure 4-51 profile export and import

2. Export / import is used to export and import configuration files.

4.5.2.2Export log file

1. Select "management debug" in the navigation bar to enter the log operation interface, as shown in figure 4-52.

Information	Management Export debuglog			
Management				
Cell	If you want to get running details of Femto cell, just click 'export' button to get Devicelog files.			
Debug				
Upload & Export	Log server Upload & dump	Export Debuglog		
LogViewer Filter				
Factory	Export			
HeMS				
Network	Devicelog.gz	export		
Performance Security Synchronization Upgrade Access Control Data Model	Varlog.tgz	export		
	dmesg.log	export		
	ps.log	export		
	netstat.log	export		
	ifconfig.log	export		
	route.log	export		
	tmpfiles.log	export		
	ethtool.log	export		

Figure 4-52 export log file

- 2. Select the log you want to export, and click export.
- 3. Select the save path in the pop-up download dialog box to save the log file locally.

4.6Restart base station

- 1. In the navigation bar, select "management->factory".
- 2. Click "reboot" to restart the base station.
- 3. It usually takes 3-5 minutes for the base station to restart.

T&W					
Information	Management R	eboot			
Management					
Cell	Reboot device				
Debug					
Factory	Watchdog	Reboot	Calibration	Vendor Logo	
HeMS					
Network	Reboot:				
Performance					
Security	Reboot				
Synchronization					
Upgrade					
Access Control					
Data Model					

Figure 4-53 device restart