Intercell Dual-Carrier TDD Enterprise Small Cell

Configuration Guide

Platform FSM

directory

1. The initial configuration

1.1 Configuration overview

1.1.1 The configuration process

After the base station is powered on, data configuration is required for the base station so as to access the user and provide the user with voice and data services.The configuration process of the base station is shown in figure 11.Figure 11. Configuration process-

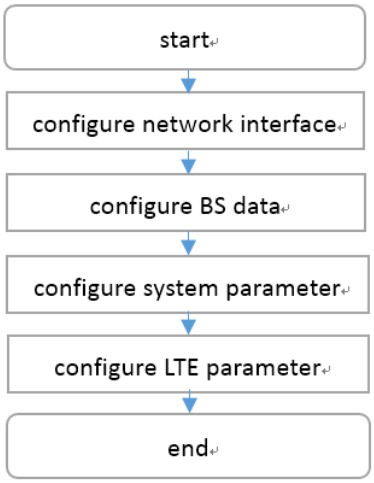


Figure 11. Configuration process-

1.1.2 Network port connection instructions

Base station Ethernet interface includes LAN interface and WAN interface.

- LAN port is usually connected with local area network, which is used for the user to log into the base station in the local network and directly configure or maintain the base station.
- WAN port is usually used for data transmission between base station and operator's core network.

1.1.3 Data preparation

Before the configuration of the base station, data planning is required. Configuration data includes local parameters and docking parameters, which shall be determined after consensus with the customer according to the actual deployment situation, including transmission network address, wireless parameters, software version, etc.

If you need to configure the cell quickly, please refer to "1.3 quick configuration".

1.2 Log in to the Web client

1.2.1 Web client environment requirements

The client computer requirements are shown in table 11.Table 11 client environment requirements-1

Table 11 client environment requirements-1

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

1.2.2 Set the client computer

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 12.Figure 12 sets the client IP address-1

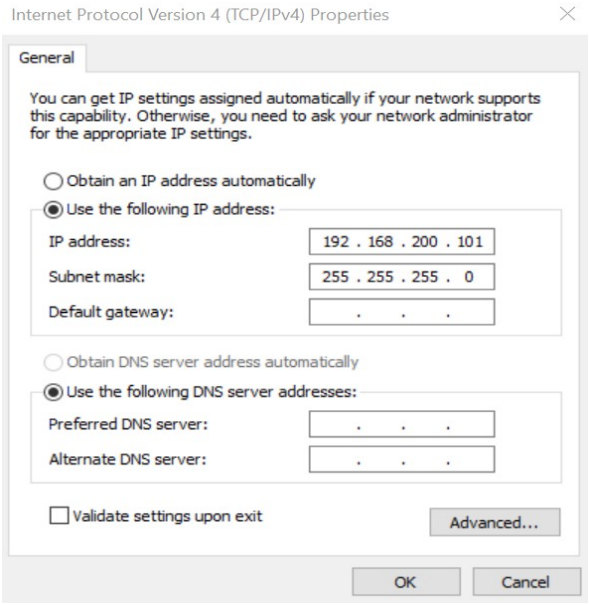


Figure 12 sets the client IP address-1

5. Select the IP address below.
6. Enter the IP address, subnet mask, and default gateway, and click ok.
   - IP address: 192.168.200. XXX: (the recommended value of XXX is 100~199)

Note: since the IP address of the base station LAN port has been preset as "192.168.200.200", other addresses need to be used.

- Subnet mask: 255.255.255.0
- Default gateway: not required

7. Perform ping 192.168.200.200 in the command line window to check whether the network is connected between the client computer and the device.

1.2.3 Log into the Web maintenance page

1. Enter https://192.168.200.200 in the browser address bar and click "sing in" to open the Web client login page, as shown in figure 14.Figure 14 login base station Web page-

   User name: admin

   Password: MikroTik

   192.168.200.200 is the initial IP address of the LAN interface.

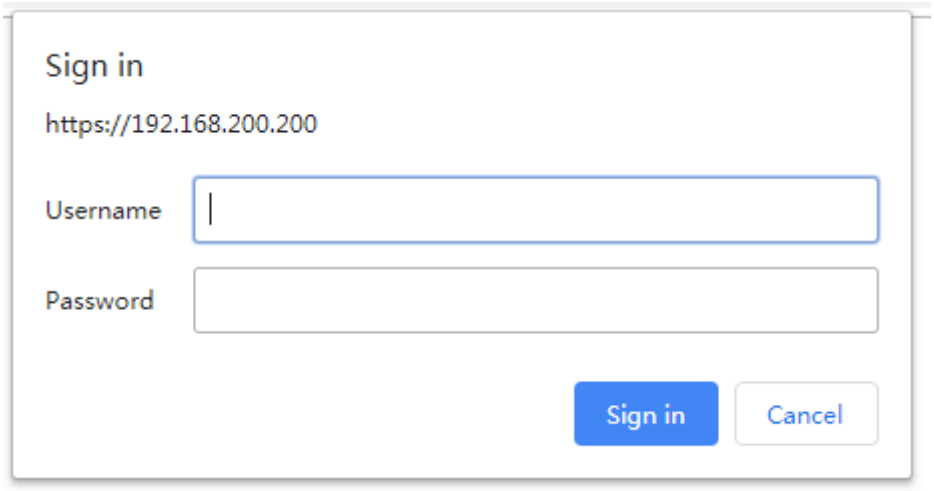


Figure 14 login base station Web page-

1.3 Quick 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.

1. Select "management-> Cell" in the navigation bar to set basic parameters of the base station, as shown in figure 15 16 17.

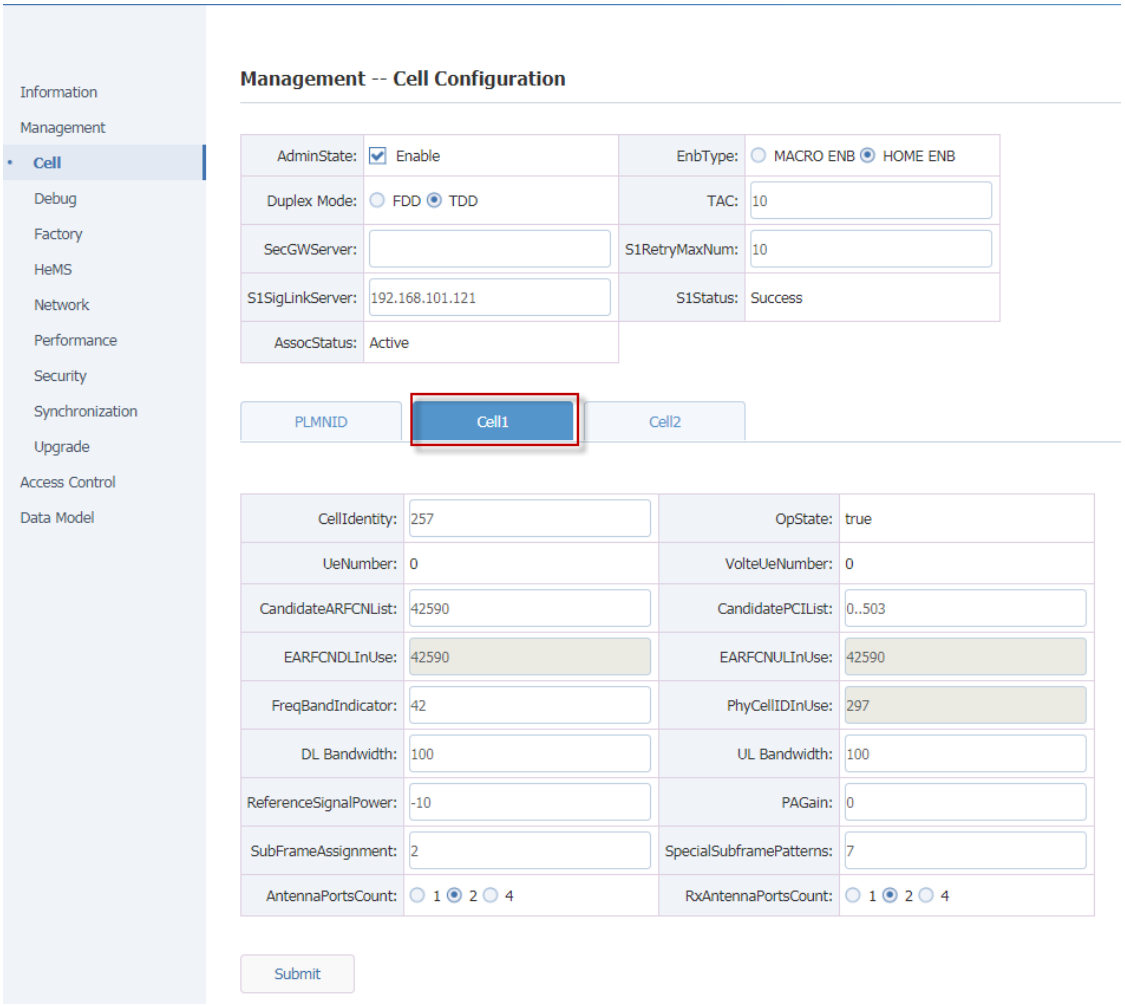


FIG. 15 quick setting of base station basic parameters-cell1

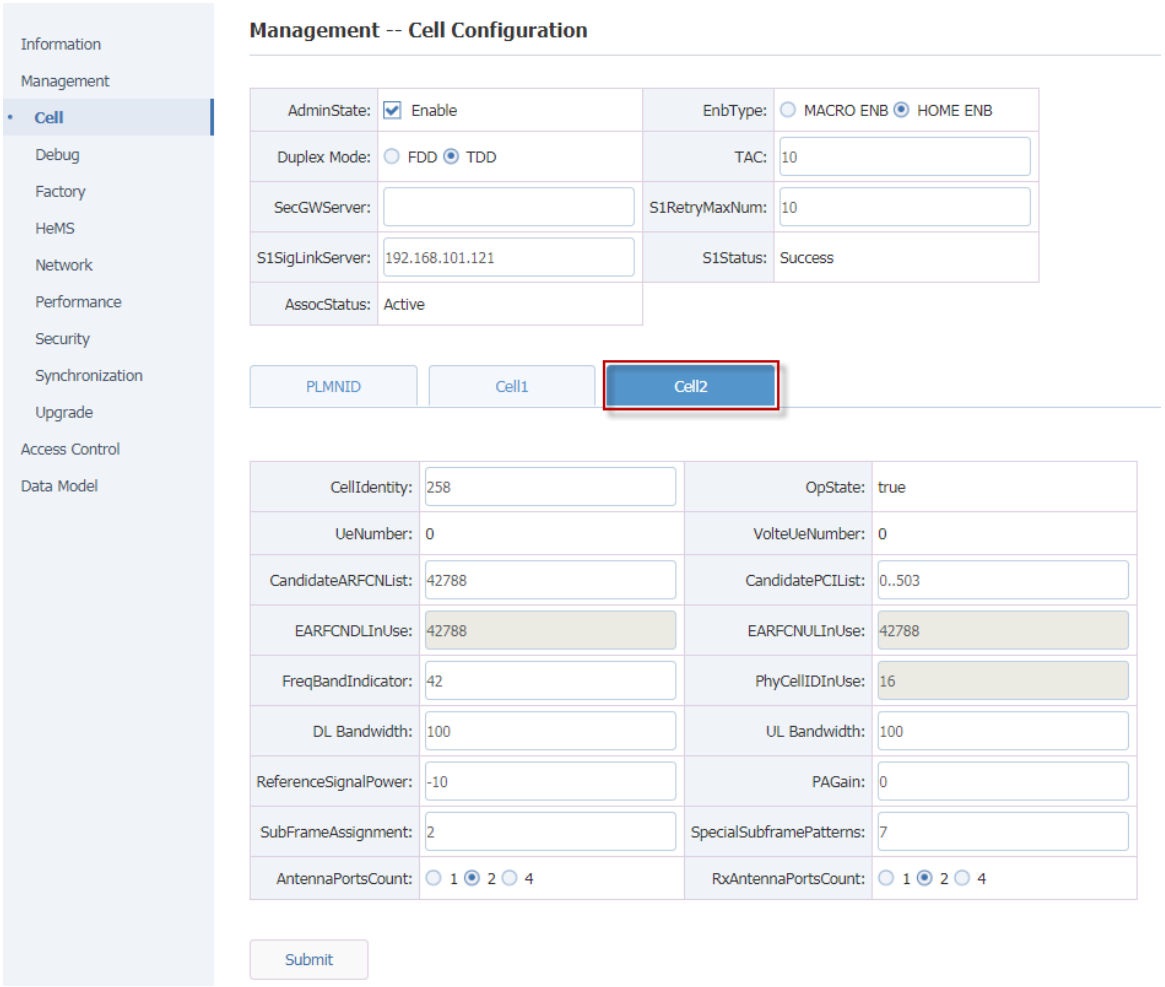


FIG. 16 quick setting of base station basic parameters-cell2

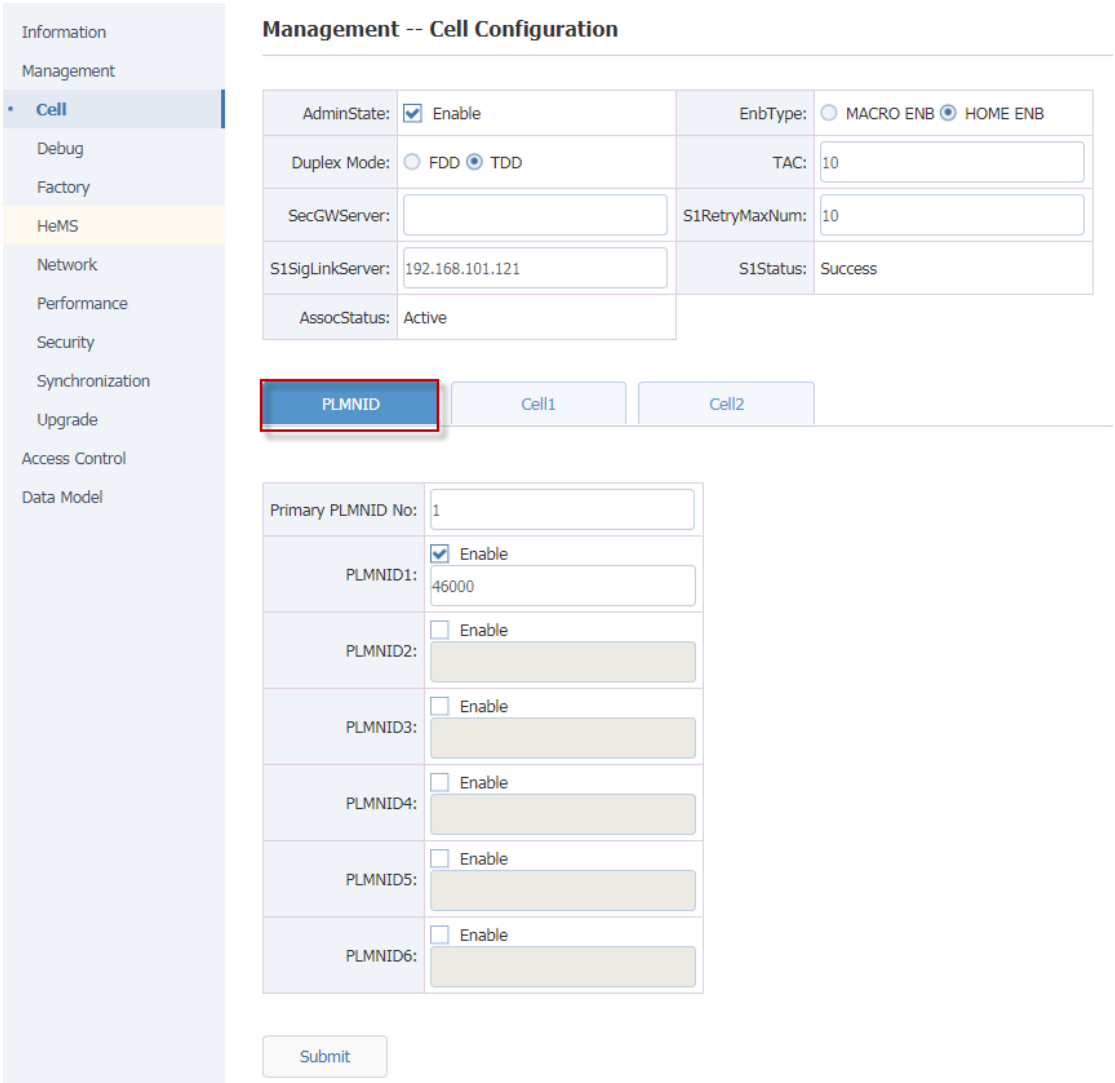


FIG. 17 quick setting of base station basic parameters-PLMN

The basic parameters are described in table 12.Table 12 quick setting parameter description-2

Table 12 quick setting parameter description-2

The parameter name	instructions
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 shutdown;
EnbType	ENB type, MARCO and HOME
Duplex Mode	Duplex mode, default is TDD
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	PLMN 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;

The parameter name	instructions
	• 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 HOME, it is the value of eNB ID moved 8bits 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.
CandidateARFCNList	Absolute frequency point list.(multiple frequency points are separated by English commas) • If only one frequency point is configured, the base station use this frequency point to establish the cell; • If multiple frequency points are configured, the base station selects frequency points according to SON's self-configuration function and establishes the cell.
CandidatePCIList	PCI list.(multiple PCI is separated by English commas) • If only one PCI is configured, the base station will use this PCI to establish cell. • If multiple PCI is configured, the base station selects PCI according to SON's PCI self-configuration function and establishes the cell
EARFCNDLInUse/ EARFCNULInUse	The actual uplink and downlink absolute frequency points used by the base station
FreqBandIndicator	The frequency band in which the base station operates
PhyCellIDInuse	The PCI that Base station actually uses
DL Bandwidth / UL Bandwidth	The number of PRBS of the bandwidth (the uplink and downlink bandwidth should be the same) • The 5MHz bandwidth is 25 • The 10MHz bandwidth is 50 • The 15MHz bandwidth is 75 • The 20MHz bandwidth is 100
ReferenceSignalPower	Reference signal power.(maximum value is 9) • For a single rf port, the actual output power is ReferenceSignalPower+31 with dBm unit, such as -10+31=21dBm
PAGain	PA gain value, the integrated base station is set to "0"
AntennaPortsCount	Number of base station antennas, usually configured as "2" (MIMO)
RxAntennaPortsCount	The number of antennas a base station USES for receiving, usually configured as "2" (MIMO)
SubFrameAssignment	SubFrame configuration,refer to 3GPP TS36.211. Support configuration: 1/2/3/4/5/6
SpecialSubframePatterns	Special Subframe configuration, refer to 3GPP TS36.211 Support configuration: 1/2/3/4/5/6/7/8/9

2. 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.

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

2. Transport network configuration

2.1 Configure the network interface

2.1.1 Configure WAN interface

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

Select "management-> Network"->IP in the navigation bar and WAN interface configuration is shown in figure 21Figure 21 configuring the WAN interface address-

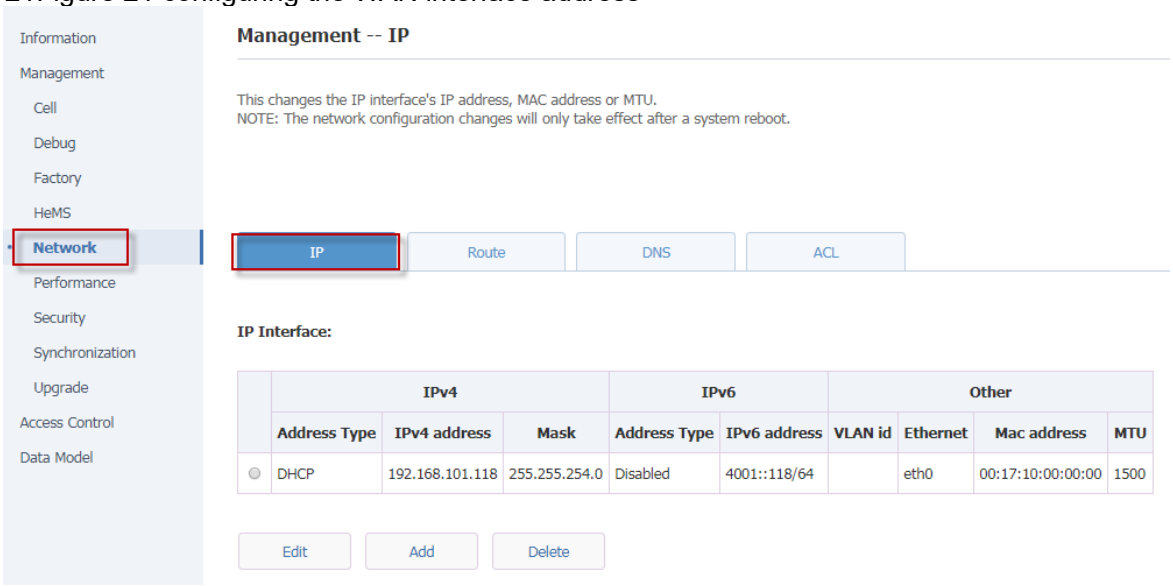


Figure 21 configuring the WAN interface address-

Table 21 parameters description of WAN interface IPv4-

The parameter name	instructions
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;

Table 22. Specification of IPv6 parameters of WAN interface-

The parameter name	instructions
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;

Table 23 description of other common parameters of WAN interface-

The parameter name	instructions
The Mac address	MAC address of WAN interface
MTU	MTU size of WAN interface

2.1.2 Configure 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 192.168.200.200, which is usually left as the default configuration.

2.1.3 Configure IPv4 routing

Select "management-> Network->Route" in the navigation bar .The Route configuration page, as shown in figure 22Figure 21 configuring the WAN interface address-

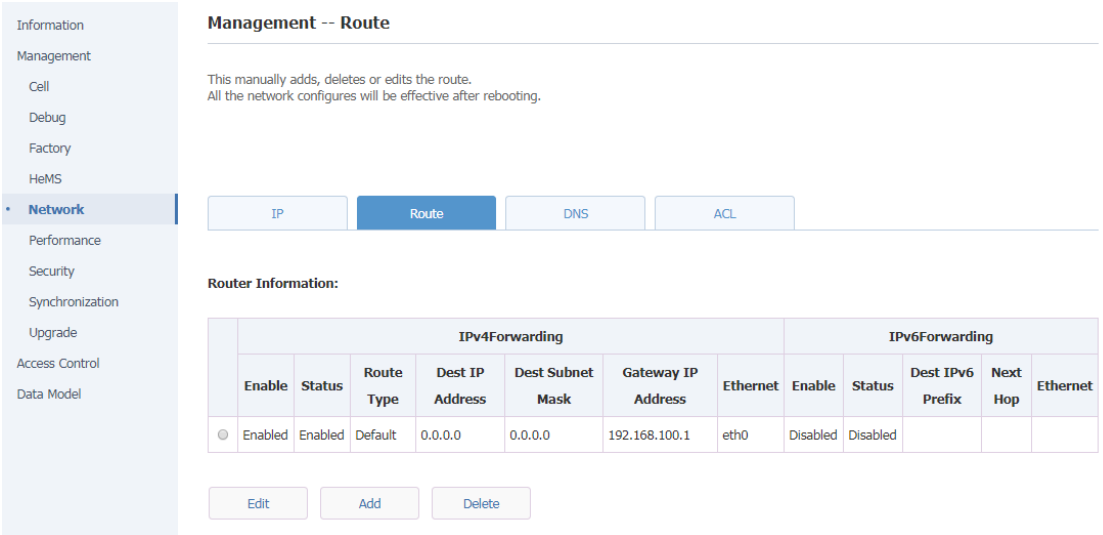


Figure 22. The Route configuration -

1. In the newly added routing instance, add an IPv4 forwarding instance, as shown in figure 23.

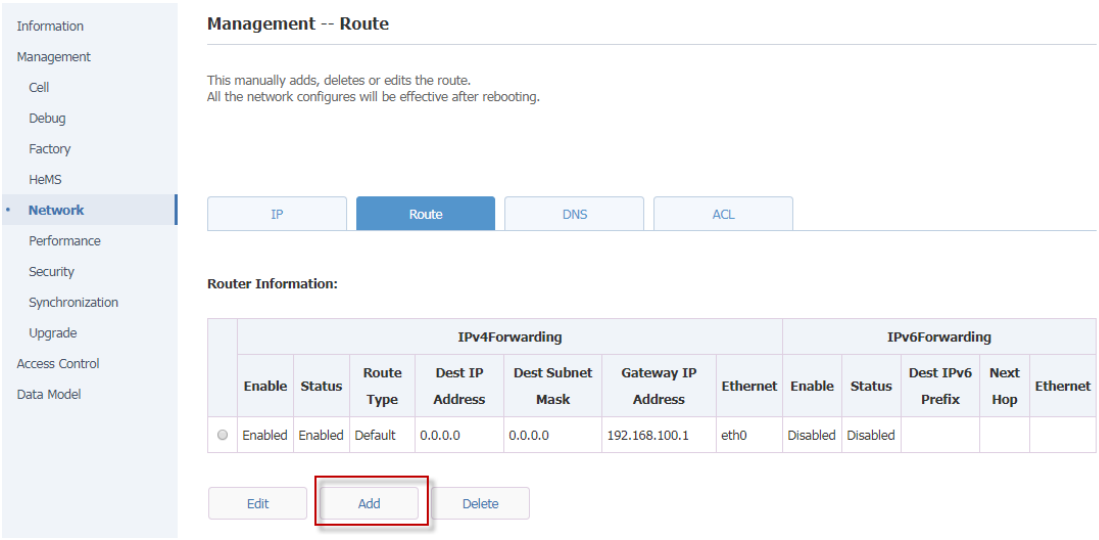


Figure 23. Add an IPv4 forwarding instance-

2. Configure route items

1) Add the default route, as shown in the figure.

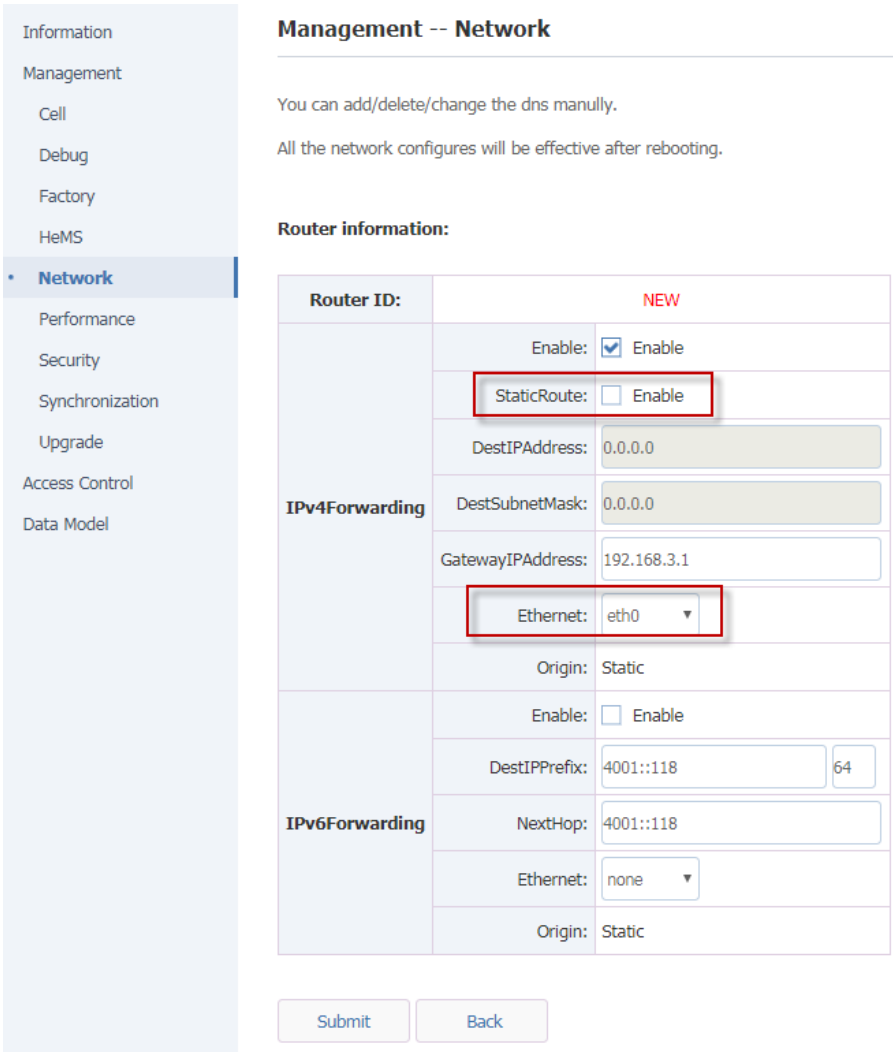


Figure 24. Add a default route-

2) Add segment routing, as shown in the figure.

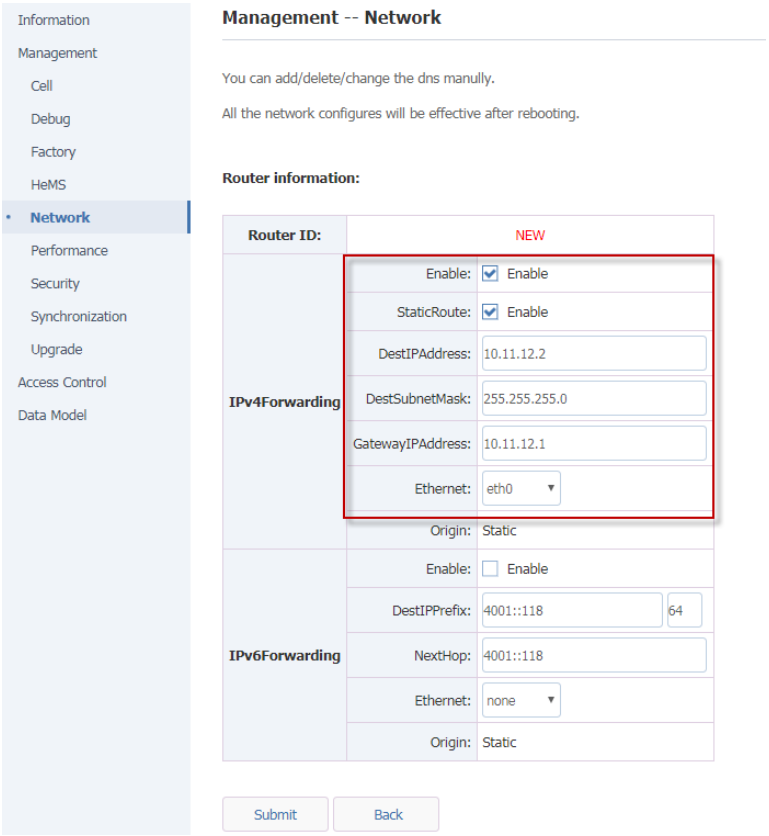


Figure 25 add segment routing-

Table 25 main route configuration parameters-3

The parameter name	instructions
The Enable	Route item switches.Check to enable, check to not 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”

2.2 Configure the NTP service

Select "management-> Synchronization" in the navigation bar and enter the NTP/Time Settings page, as shown in the figure below.

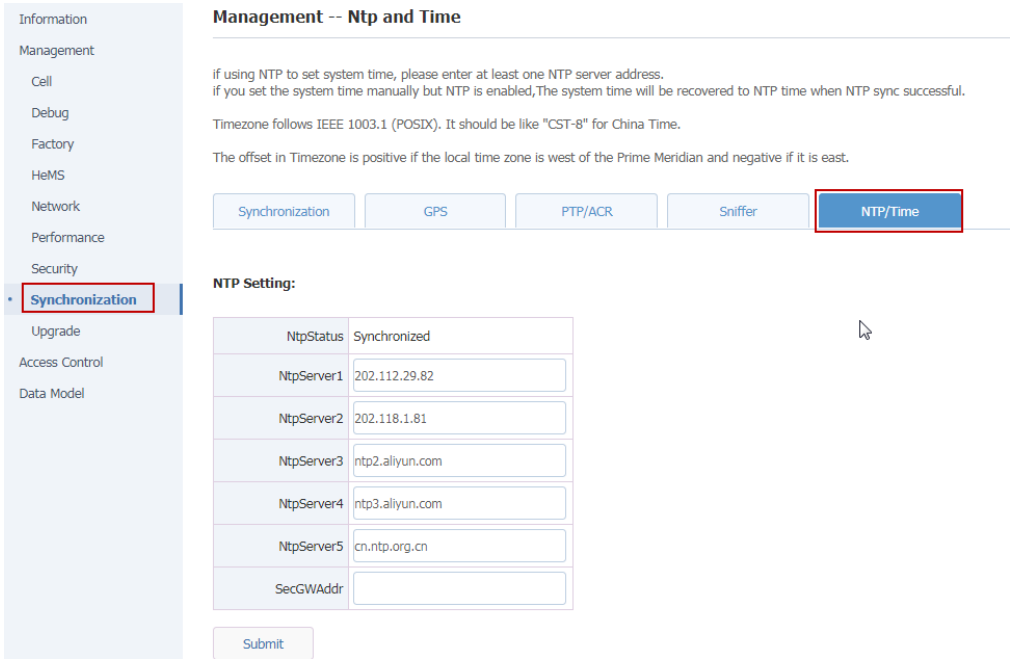


Figure 26 NTP configuration-

Configure the NTP server parameters as shown in the following table.Table 39 NTP server parameters-

Table 39 NTP server parameters-

The parameter name	instructions
The NTP Server	The domain name or IP address of the NTP server.(multiple configurations are available)

2.3 Configure base station X2 function

Data model path: Device. Services. FAPService. 1. X_OUI_X2.

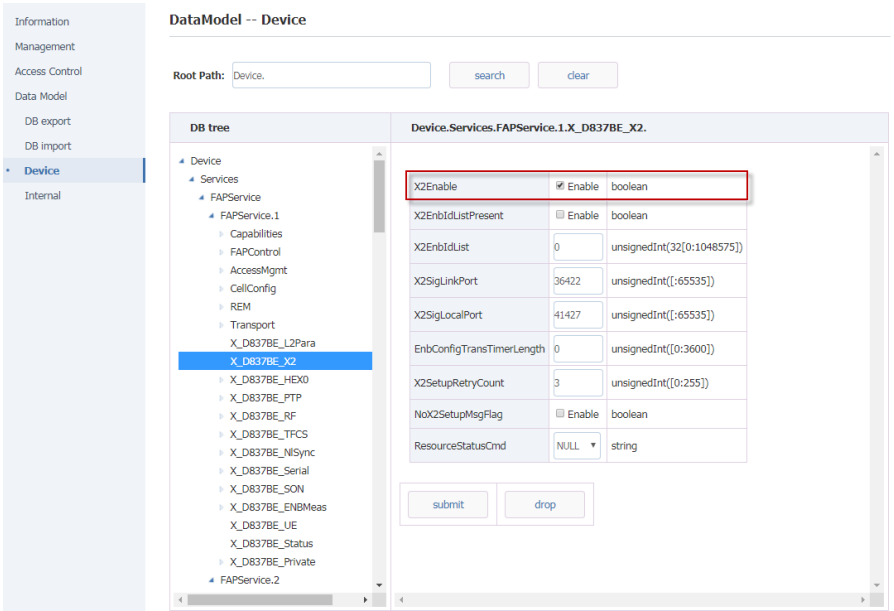


Figure 27 configures the X2 functionality-

Table 311 X2 functional parameters-

The parameter name	instructions
X2Enable	X2 function switch, on by default.
X2SigLinkPort	X2 connection port, default 36422.

2.4 Configure network management connection

Select "management-> HeMS" in the navigation bar, as shown in the figure.

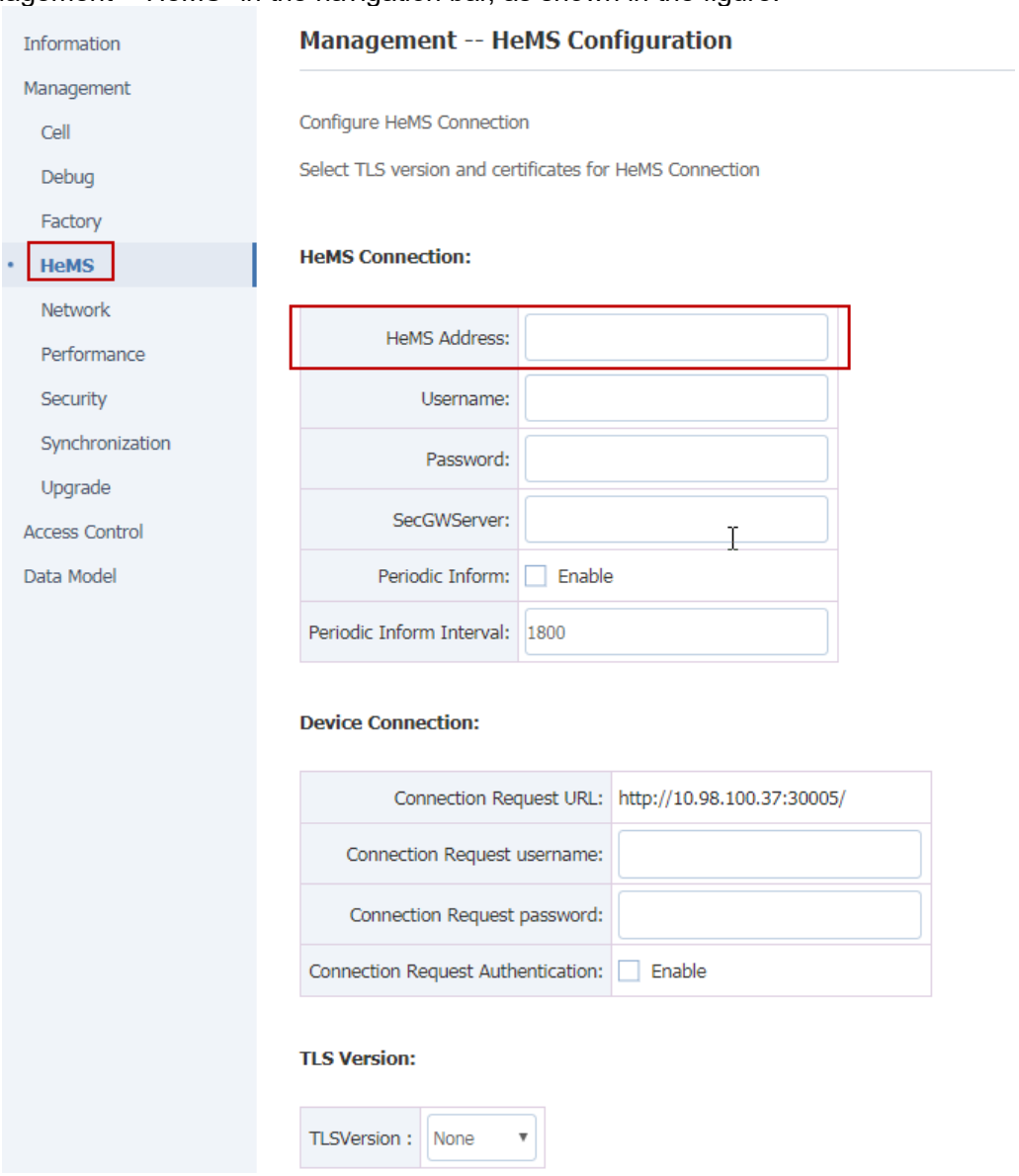


Figure 28 configuration of network administrator-

Table 312 network management parameters-

The parameter name	instructions
The HeMS address	Network address
The HeMS username	Network administrator user name
The HeMS password	Administrator password

3. Configure base station parameters

3.1 Set encryption and integrity protection algorithms

Set the data encryption and integrity protection algorithm of PDCP sub-layer.

1. "Choose" Database "in the navigation bar, input Device. Services. FAPService. 1. CellConfig. LTE. EPC." enter the configuration page, as shown.Error: Reference source not found

Note: the following security parameters do not normally need to be modified, leaving the default values!

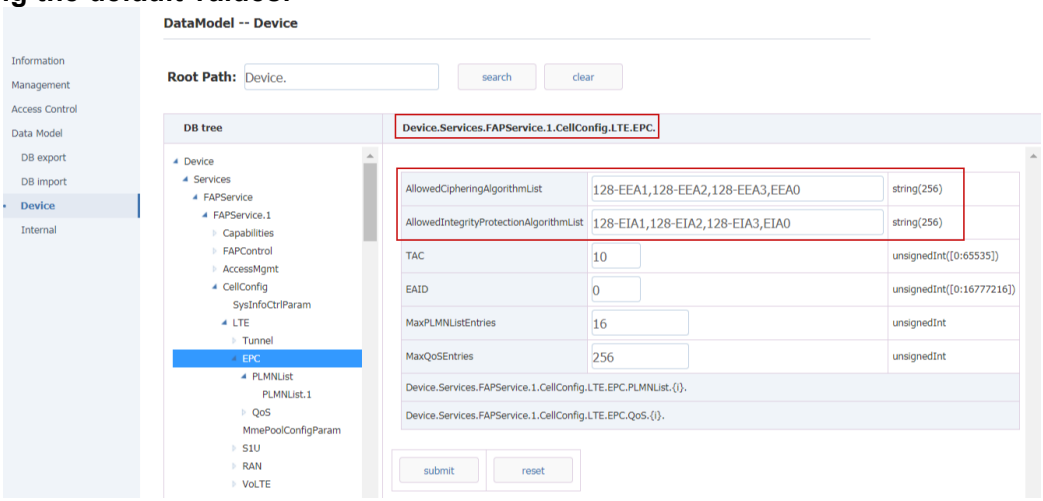


Figure 31 sets up encryption and integrity protection algorithms-

2. The security parameters are described, as shown in table 31.Table 31 safety parameters description-

Table 31 safety parameters description-

The parameter name	instructions
AllowedCipheringAlgorithmList	Encryption algorithms. Value range: • 128-eea1, 128-eea2, 128-eea3, EEA0 The default value is: 128-eea1
AllowedIntegrityProtectionAlgorithmList	Integrity protection algorithm. Value range: • 128-EIA1, 128-EIA2, 128-EIA3, EIA0 The default value is: 128-eia1

3.2 Configure base station mobility parameters

3.2.1 Neighbor cell is found by air port listening mode

The base station has the self-discovery and self-configuration function of the intra frequency adjacent

cell, inter frequency adjacent cell and inter system adjacent cell based on air port interception.It needs to be used in combination with 3.2.1.1 or 3.2.1.2.Everytime when the base station reboot it will exeute the interception process to add neighbor cells.

1. Enable neighborhood self-discovery and frequency point self-measurement functions based on air port interception, as shown in figure 32.Error: Reference source not found

Data model path:

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

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

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

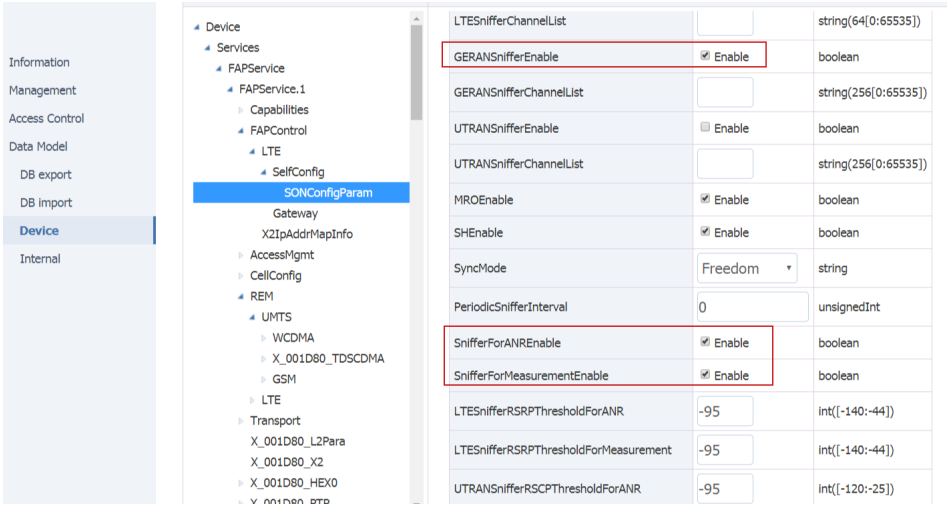


FIG. 33 enables neighborhood self-discovery and frequency point self-measurement function switch based on air port interception-

Table 32 parameter description-

The parameter name	instructions
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)
GERANSnifferEnable	GSM neighborhood self - discovery function switch based on air - port interception. • Default is off

3.2.1.1 Air- port interception for LTE adjacent cell

1. Set the LTE band or frequency point to listen for.

Data model path:

Device. Services. FAPService. 1. REM. LTE. REMPLMNList

Device. Services. FAPService. 1. REM. LTE. EUTRACarrierARFCNDLList

Device. Services. FAPService. 1. REM. LTE. ScanOnBoot (note that if you want to scan frequency points or PLMN this switch to turn on)

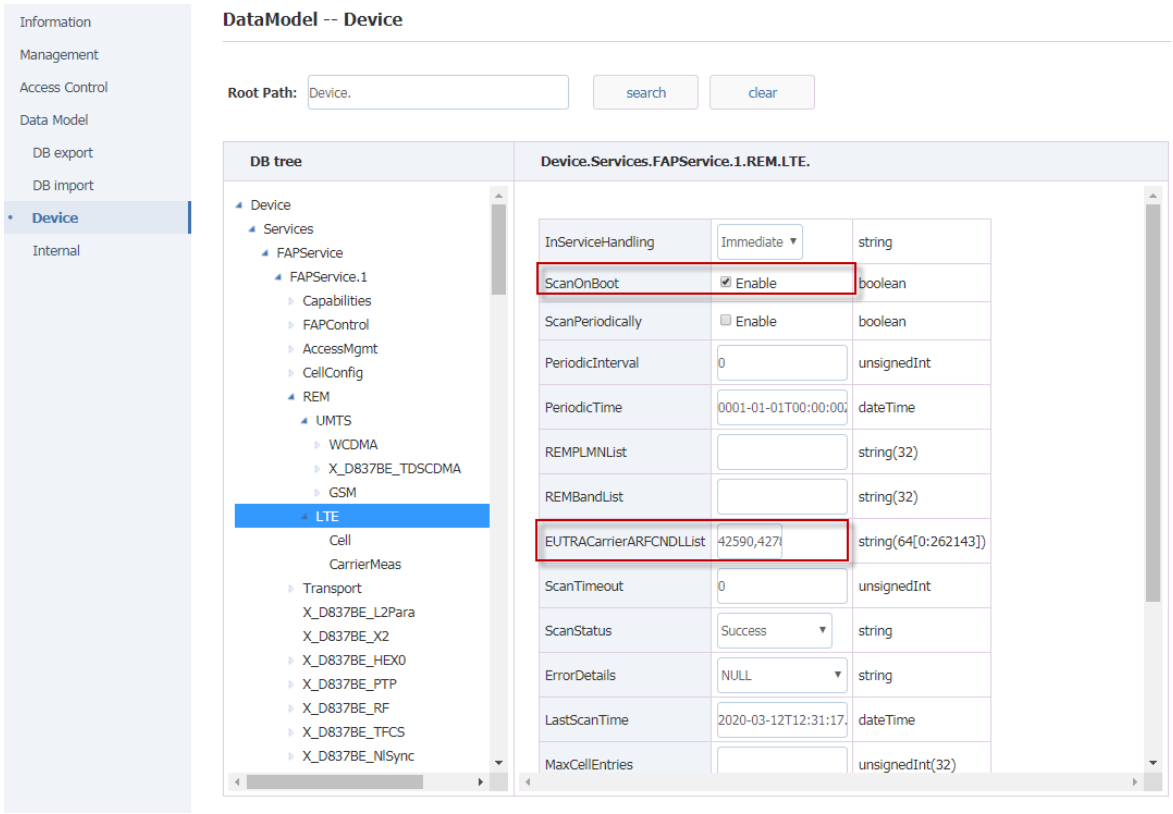


Figure 33 sets the listening LTE frequency point-

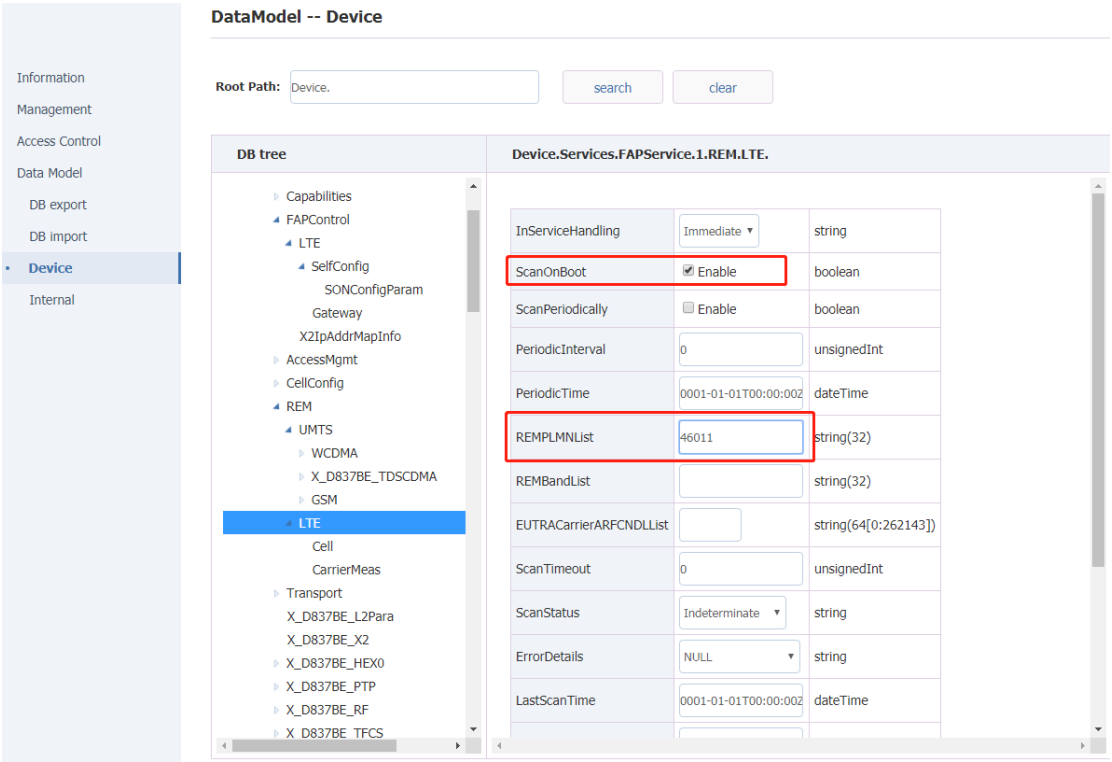


Figure 34 sets up listening for PLMN-

Table 34 configuration description of LTE neighborhood scan parameters-

The parameter name	instructions
EUTRACarrierARFCNDLList	Scanning frequency points, commonly used frequency points include: 100,1825
REMPLMNList	Add the PLMN ID of the scan

2. Listen for scan results, as shown in the figure below.

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

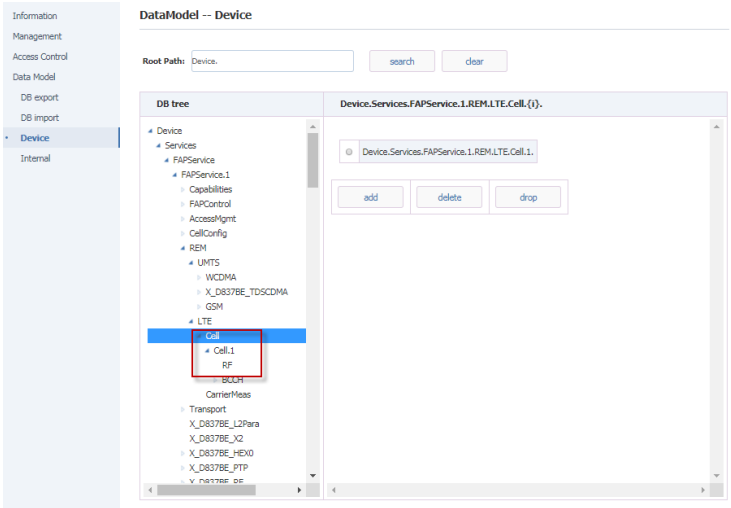


Figure 35 shows the results of the air port listening scan-

3. The adjacent cell added by an air port listener is shown in the figure.

Adjacent cell discovered by air port listening method are added to the relational table of the base station.

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

 **Note: Some scanned LTE cells are not added to the neighbor relationship table of the base station, which is because the RSRP of the scanned LTE cells is too weak. You can add these cells to the neighbor relationship table by properly adjusting the threshold value (LTESnifferRSRPThresholdForANR), see table 3.5..**Table 35 whether the LTE adjacent area listened to is used as the judgment statement of base station adjacent area-

Data model path:

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

Table 35 whether the LTE adjacent area listened to is used as the judgment statement of base station adjacent area-

The parameter name	Value range	instructions
LTESnifferRSRPThresholdForANR	44] [- 140: -	This is the RSRP threshold that LTE adjacent cell scanned can be used as a relation. The default value is -95, which can be adjusted according to the actual situation

3.2.1.2 Air port interception for WCDMA adjacent cell (limited qualcomm platform products)

1. Enable WCDMA air port listening function

   Data model path:

   Device. Services. FAPService. 1. REM. UMTS. WCDMA. ScanOnBoot

2. Set the WCDMA parameters to listen for

   Data model path:

   Device. Services. FAPService. 1. REM. UMTS. WCDMA. REMPLMNList

   Device. Services. FAPService. 1. REM. UMTS. WCDMA. REMBandList

   Device. Services. FAPService. 1. REM. UMTS. WCDMA. UARFCNDLList

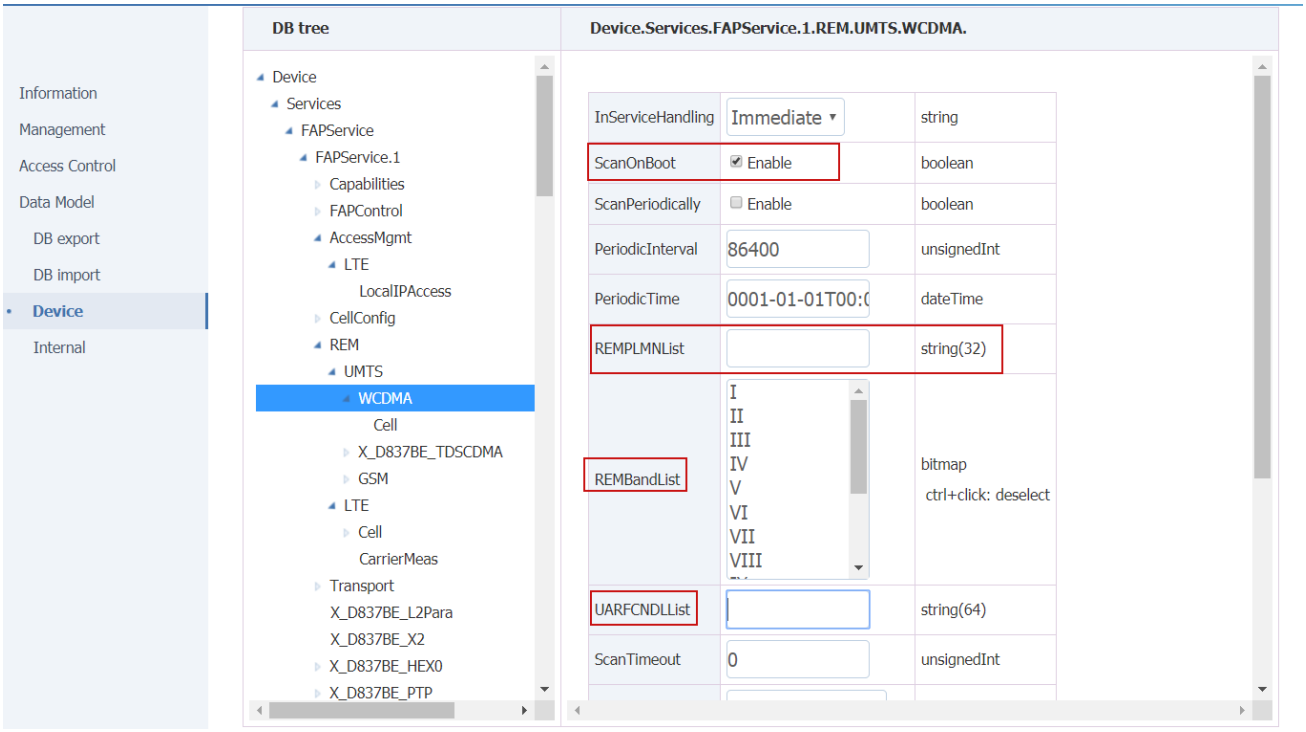
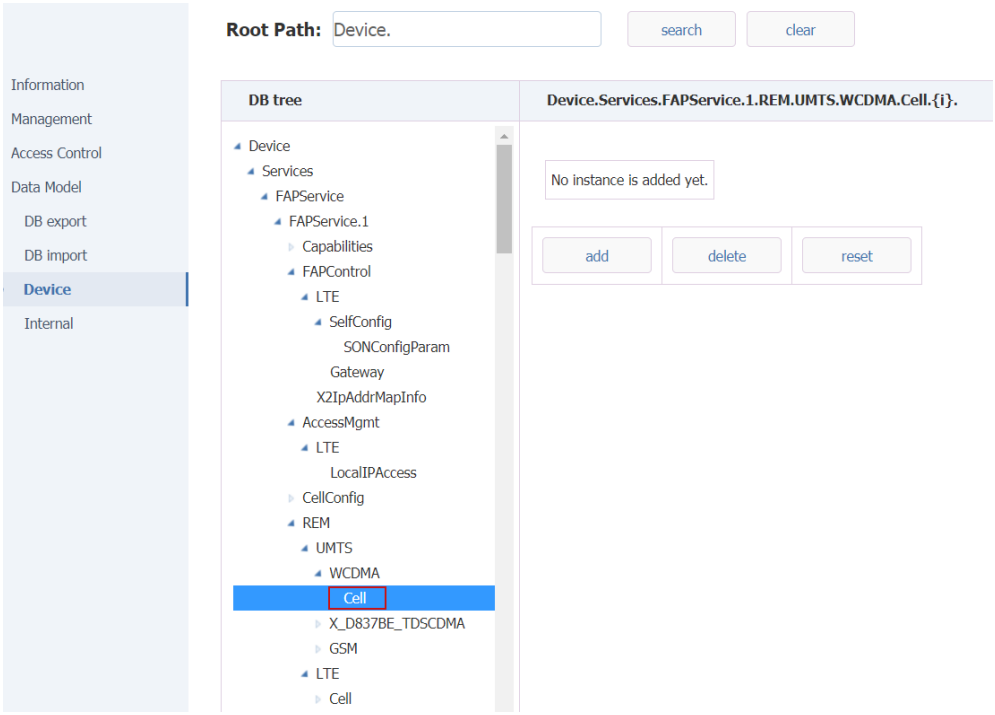


Table 36 WCDMA neighborhood scanning parameter configuration-

The parameter name	instructions
Device. Services. FAPService. 1. REM. UMTS. WCDMA. ScanOnBoot	WCDMA air port listening switch.Zero: disable;1: enabled
Device. Services. FAPService. 1. REM. UMTS. WCDMA. REMPLMNList	Input the operator's PLMN, the base station will screen the adjacent areas scanned, and only retain the adjacent areas in the REMPLMNList.
Device. Services. FAPService. 1. REM. UMTS. WCDMA. REMBandList	Scan the WCDMA frequency band, generally do not need to scan the frequency band, put this empty.
Device. Services. FAPService. 1. REM. UMTS. WCDMA. UARFCNDLList	Scan the WCDMA frequency point.

3. Listen for scan results, as shown in the figure below.

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



4. WCDMA adjacent region added by air port listening mode is shown in the figure.

Adjacent areas discovered by air port listening method are added to the adjacent area relational table of the base station.

Data model path:

Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborListInUse. InterRATCell. UMTS. {I}.

Note: Some scanned 3G cells are not added to the neighbor relationship table of the base station, which is because the RSCP of the scanned 3G cells is too weak. You can add these cells to the neighbor relationship table by properly adjusting the threshold value.

(LTESnifferRSRPThresholdForANR) see table 35. Table 35 whether the LTE adjacent area listened to is used as the judgment statement of base station adjacent area-

Data model path:

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

Table 35 whether WCDMA adjacent region listened to is used as base station adjacent region judgment statement-

The parameter name	Value range	instructions
Device. Services. FAPService. 1. FAPControl. LTE. SelfConfig. SONConfigParam. UTRANSnifferRSCPThresholdForANR.	44] [- 140: -	This is the RSCP threshold that 3G adjacent cell scanned can be used as a relation. The default value is -95, which can be adjusted according to the actual situation

3.2.1.3 Air port interception for GSM adjacent cell

4. Enable GSM air port listening function

Data model path:

Device. Services. FAPService. 1. REM. UMTS. GSM. ScanOnBoot

5. Set the listening GSM parameter

Data model path:

Device. Services. FAPService. 1. REM. UMTS. GSM. REMPLMNList

Device. Services. FAPService. 1. REM. UMTS. GSM. REMBandList

Device. Services. FAPService. 1. REM. UMTS. GSM. ARFCNList

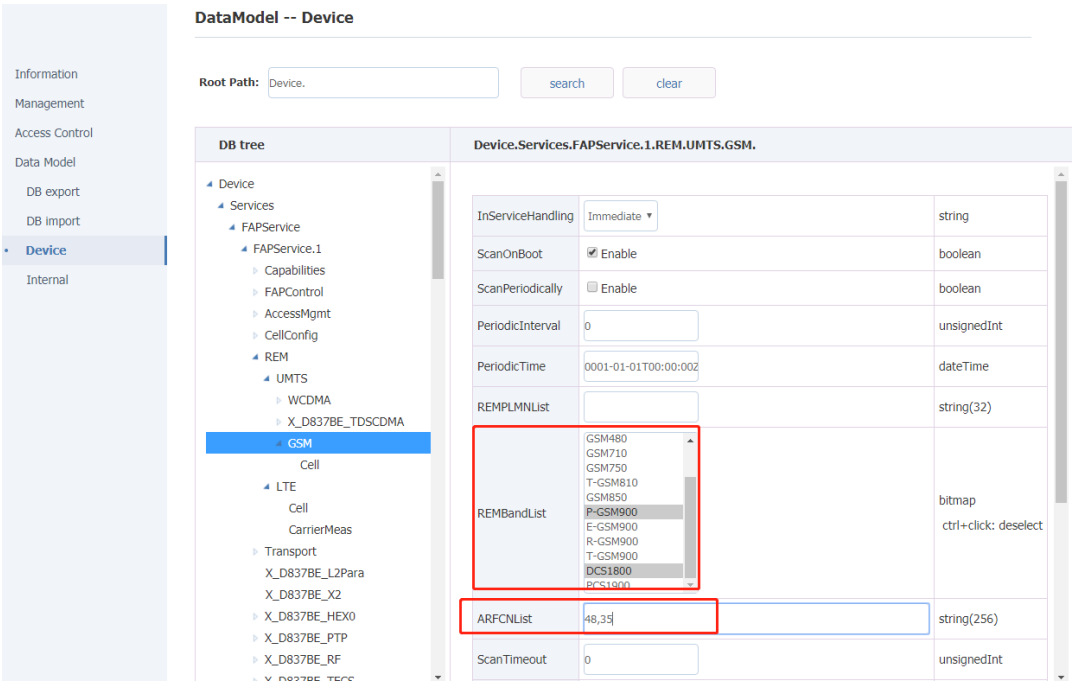


Figure 37 sets the listening GSM band or frequency point-

Table 36 GSM neighboring area scanning parameter configuration instructions-

The parameter name	instructions
Device. Services. FAPService. 1. REM. UMTS. GSM. ScanOnBoot	GSM air port listening switch.Zero: disable;1: enabled
Device. Services. FAPService. 1. REM. UMTS. GSM. REMPLMNList	Input the operator's PLMN, the base station will screen the adjacent areas scanned, and only retain the adjacent areas in the REMPLMNList.
Device. Services. FAPService. 1. REM. UMTS. GSM. REMBandList	The GSM band is scanned. In general, there is no need to scan the band.
Device. Services. FAPService. 1. REM. UMTS. GSM. ARFCNList	Scan the GSM frequency point.

6. GSM cell scan results, as shown in the figure.Error: Reference source not found

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

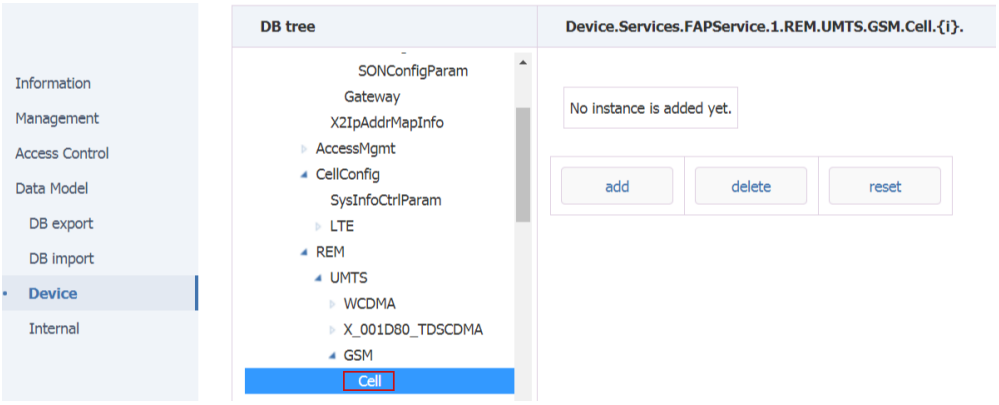


FIG. 39 GSM cell scan results-

7. Add GSM neighbors by using an empty port listener, as shown in the figure.

Adjacent areas discovered by air listening are added to the list of adjacent areas of the base station.

Data model path:

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

Note: Some scanned 2G cells are not added to the neighbor relationship table of the base station, which is because the RSSI of the scanned 2G cells is too weak. You can add these cells to the neighbor relationship table by properly adjusting the threshold value

(GERANSnifferRSSIThresholdForANR), as shown in table 37. Table 37 whether the GSM adjacent region listened to is the judgment statement of base station adjacent region-

Data model path:

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

Table 37 whether the GSM adjacent region listened to is the judgment statement of base station adjacent region-

The parameter name	Value range	instructions
GERANSnifferRSSIThresholdForANR	[48] - 110:	This is the RSSI threshold that 2G adjacent cell scanned can be used as a relation. The default value is -95, which can be adjusted according to the actual situation

3.2.2 Manually configure adjacent cells

When manually configuring adjacent cell, the adjacent cell list of base station shall be configured firstly. After enabling the adjacent cell, it will be added to the adjacent cell relation table of the base station as the effective adjacent area.

1. Manually configure the neighborhood by setting up the neighborhood list.

   Data model path:

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

2. Enabled neighbors in the neighborhood list are added to the base station's neighborhood table.

   Data model path:

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

3.2.2.1 Manually configure LTE neighbors

1. Manually configure the neighborhood list

   Data model path:

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

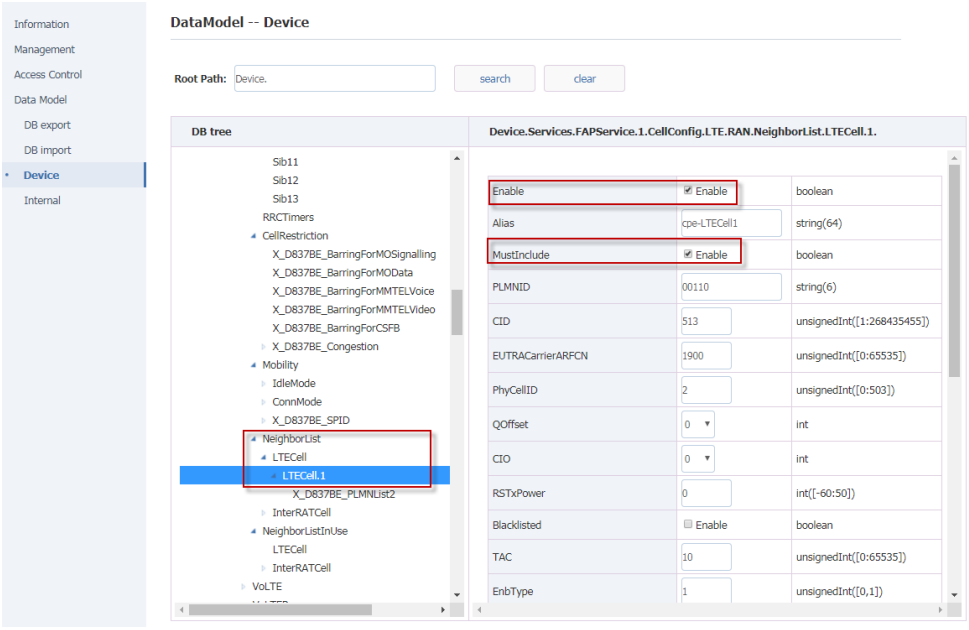


Figure 310 manually add LTE adjacent area-

2. After setting LTE neighborhood information, select "submit" to submit;
3. Main parameters are described in the following table.

Table 38 specification of LTE neighborhood parameter configuration-

The parameter name	instructions
The Enable	Adjacent enable switch 0: invalid neighborhood;1: effective neighborhood
Alias	Keep the default
MustInclude	Whether to include the neighbor table switch 0: not added to neighborhood relational table;1: is added to the neighborhood relationship table
PLMNID	Adjacent regions PLMN ID
CID	Neighborhood community ID, • When the neighborhood type is Home, the length is 28 bits • When the neighborhood type is Marco, the length is 20 bits (that is, eNodeB ID)
EUTRACarrierARFCN	Neighborhood absolute frequency
PhyCellID	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: hong station, 1: small station
X_18396E_NoRemove	Disabled by default. If enabled, this neighborhood will not be automatically removed from the InUse list
X_18396E_NoX2	Default off. • If enabled, the base station will not establish an X2 connection with this neighborhood
X_18396E_NoX2HO	Default off. • 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

3.2.2.2 Manually configure 3G neighbors

1. Manually configure the 3G neighborhood list

   Data model path:

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

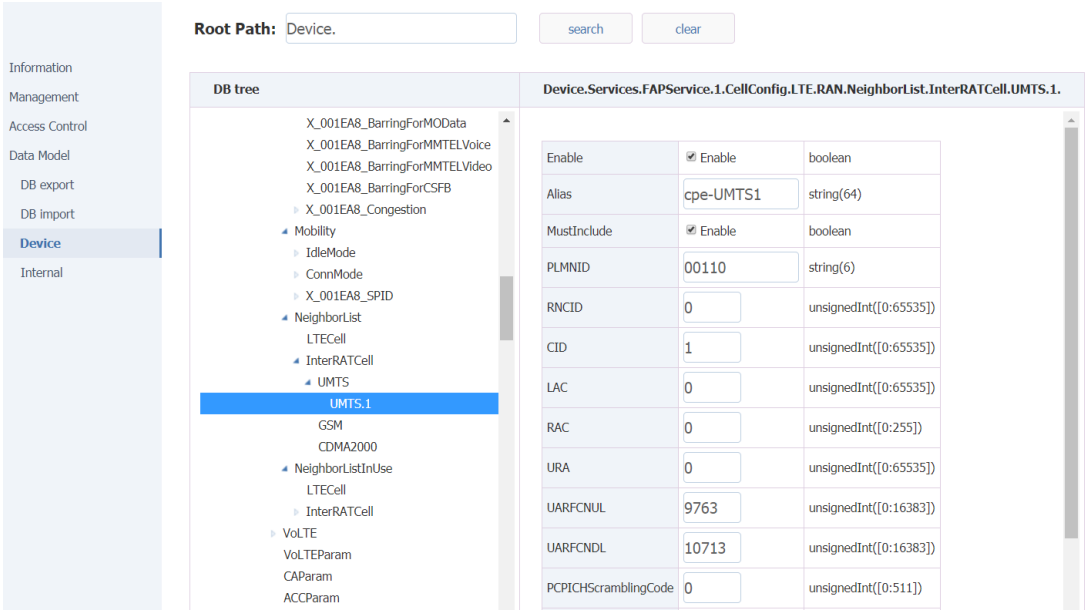


Figure 311 manually add 3G neighborhood-

2. After setting 3G neighborhood information, select "submit" to submit;

3. Main parameters are described in the following table.

Table 39 UMTS neighborhood parameter configuration description-

The parameter name	instructions
The Enable	Entry enable switch, need enable
Alias	Keep the default
MustInclude	Mandatory include switch, need enable
PLMNID	Adjacent regions PLMN ID
RNCID	Adjacent regions RNC ID
CID	Adjacent regions C - ID
LAC	Adjacent regions LAC
The RAC	Adjacent regions RAC
URA	Adjacent regions URA
UARFCNUL	Line frequency points on
UARFCNDL	The line frequency point
PCPICHScramblingCode	scrambler
PCPICHTxPower	PCPICH transmitting power, multiplied by 0.1 is the actual value, in dBm

3.2.2.3 Configure GSM neighborhood

1. Manually configure the GSM neighborhood list

   Data model path:

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

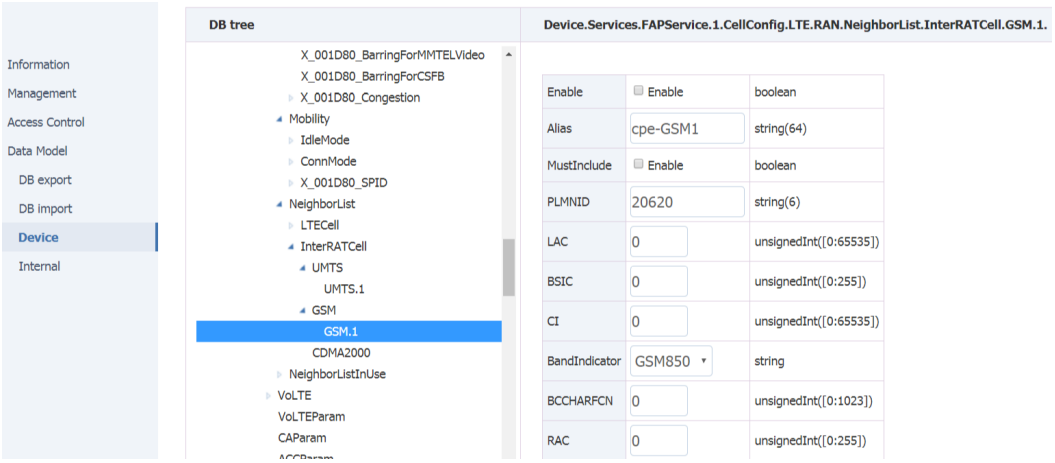


Figure 312 add GSM neighborhood manually-

2. After setting the GSM neighborhood information, select "submit" to submit;
3. Main parameters are described in table 310.Table 310 GSM neighborhood parameter configuration instructions-4

Table 310 GSM neighborhood parameter configuration instructions-4

The parameter name	instructions
The Enable	Entry enable switch, need enable
Alias	
MustInclude	Mandatory include switch, need enable
PLMNID	Adjacent regions PLMN ID
LAC	Adjacent regions LAC

BSIC	Bit 7:6 - not used ("00") Bit 5:3-ncc (PLMN Color Code) Bit 2:0-bcc (BS color code)
CI	Adjacent regions Cell ID
BandIndicator	Adjacent band indication
BCCHARFCN	Adjacent regions frequency points
The RAC	Adjacent regions RAC

3.2.3 Mobility parameters configuration

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 overcover-based 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

3.2.3.1 Start different frequency/system measurement

1. The base station starts the different frequency/different system measurement triggered by A2 events. As shown in the figure, there are 11 groups of configurations of A2 events, and the ones to be concerned are 1 to 7, which are respectively used in different scenarios:Error: Reference source not found

A2MeasureCtrl.1: measurement of different frequencies

A2MeasureCtrl.2: 3G measurement (with LTE data service)

A2MeasureCtrl 3: 2G measurement (with LTE data service)

Blind A2MeasureCtrl. 4:3 g

Blind A2MeasureCtrl. 5:2 g

A2MeasureCtrl 6: 3G measurement (with LTE voice service)

A2MeasureCtrl 7: 2G measurement (with LTE voice service)

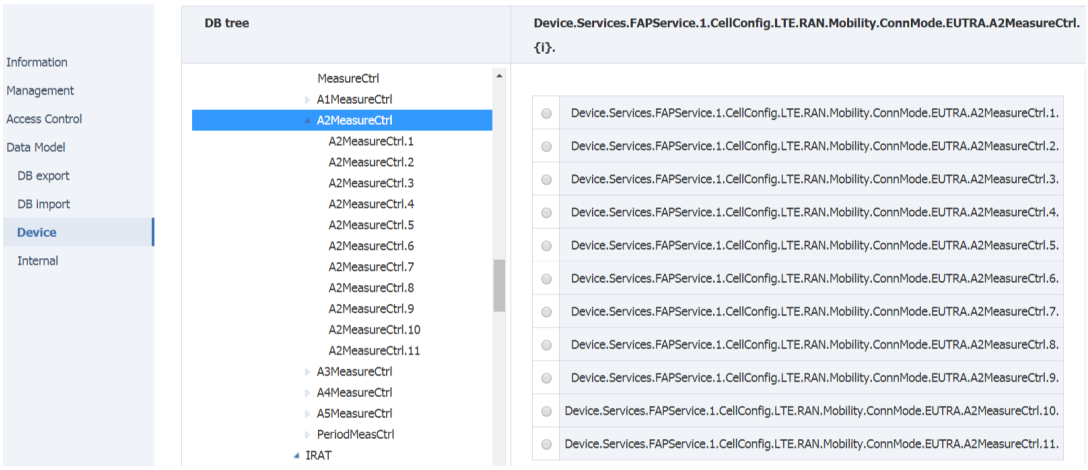


Figure 313 A2 event-

2. Regarding the parameter configuration of A2 event, take the common different 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 314, 45-140-2*0.5=-96 dBm) and are maintained longer than TimeToTrigger, and report continuously with ReportInterval.Error: Reference source not foundSee table 311 for parameter description.Table 311 A2 event configuration instructions-5

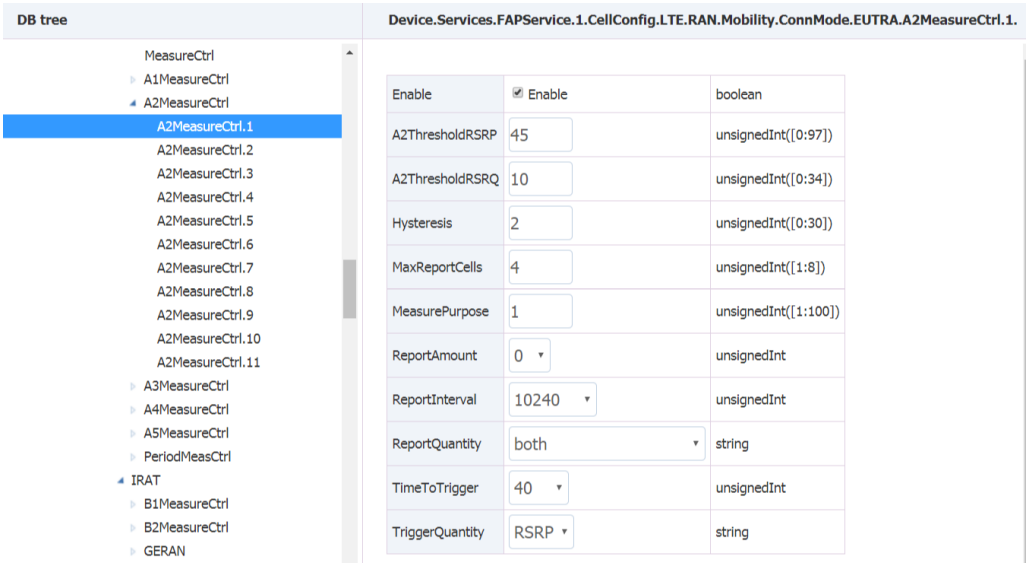


Figure 314 A2 event parameters-

Table 311 A2 event configuration instructions-5

The parameter name	instructions

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, in ms
ReportQuantity	Report the amount
TimeToTrigger	Trigger time in ms
TriggerQuantity	Trigger, default to RSRP

3.2.3.2 Stop different frequency/system measurement

1. The measurement of base station stopping different frequency/different system is triggered by A1 events, as shown in figure 248. A1 events have a total of 11 configurations, and the ones to be concerned are 1 to 5, which are respectively used in different scenarios:Figure 248 A1 event -2

   A1MeasureCtrl.1: measurement of different frequencies

   A1MeasureCtrl.2: 3G measurement (with LTE data service)

   A1MeasureCtrl.3: 2G measurement (with LTE data service)

   A1MeasureCtrl.4: 3G measurement (with LTE voice service)

   A1MeasureCtrl.5: 2G measurement (LTE voice service exists)

Figure 248 A1 event-2

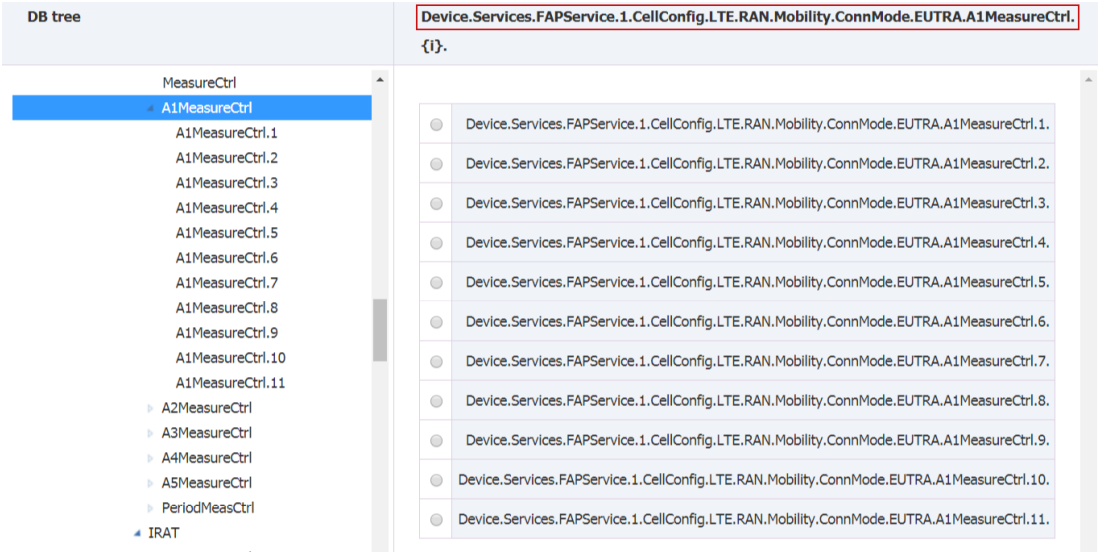


Figure 315 A1 event-

2. The parameter configuration of A1 event is taken as an example.

   A1 event will be triggered when UE measurement results of primary plot are larger than A1ThresholdRSRP+ Hysteresis (both are actual values after conversion, as shown in FIG. 249, 55-140+2*0.5=-84 dBm) and maintain time greater than TimeToTrigger, and report continuously with

ReportInterval.Error: Reference source not foundSee table 318 for parameter description.Table 312 A1 event configuration notes-6

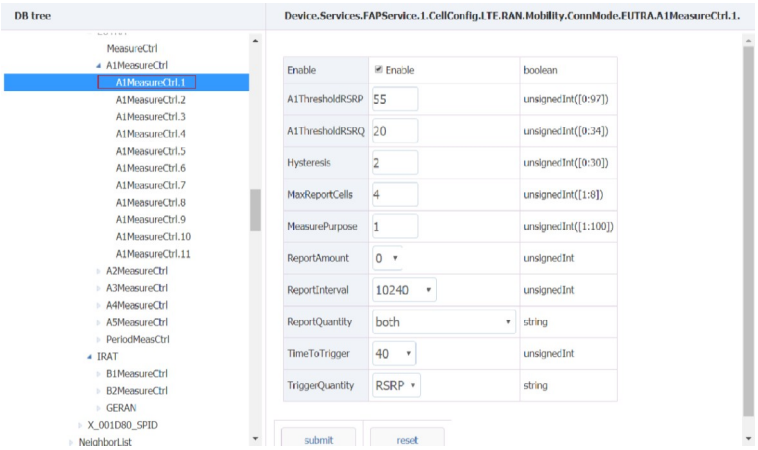


Figure 316 A1 event parameters-

Table 312 A1 event configuration notes-6

The parameter name	instructions
The Enable	
A1ThresholdRSRP	A1 RSRP trigger threshold, which is the actual value (in dBm) after subtraction of 140
A1ThresholdRSRQ	
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, in ms
ReportQuantity	Report the amount
TimeToTrigger	Trigger time in ms
TriggerQuantity	Trigger, default to RSRP

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

3.2.3.3 LTE same/different frequency handover

1. LTE same-frequency/different-frequency switching is triggered by A3 events. As shown in figure 317, there are two groups of configurations of A3 events, which are used in different scenarios:Error: Reference source not found

   A3MeasureCtrl.1: measurement of same frequency

   A3MeasureCtrl.2: measurement of different frequencies

Figure 317 A3 events-

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 area respectively (default is 0), Off is A3Offset, Hys 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. 251, 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 foundSee table 313 for parameter description.Table 313 A3 event configuration notes-7

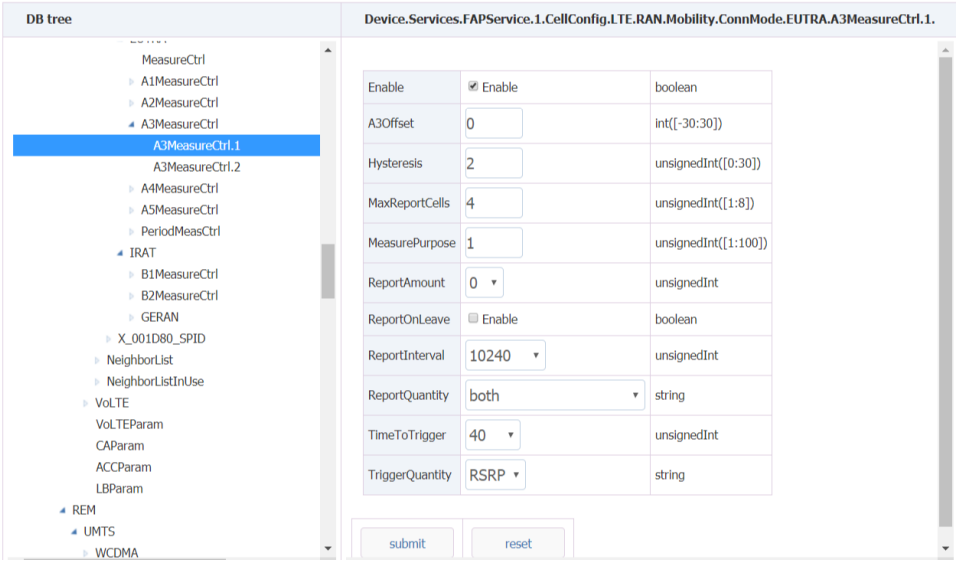


Figure 318 A3 event parameters-

Table 313 A3 event configuration notes-7

The parameter name	instructions
The Enable	
A3Offset	A3 offset, multiplied by 0.5, is the actual value (in dB).
Hysteresis	Trigger hysteresis, multiplied by 0.5, is the actual value (in unit 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
TriggerQuantity	Trigger, default to RSRP

3.2.3.4 Overlay based eSRVCC

1. Overlay based eSRVCC switch is triggered by event B2, as shown in figure 252. There are 4 sets of configurations of B2 event for different purposes. The overlay based eSRVCC switch is triggered by B2MeasureCtrl.Error: Reference source not found

   B2MeasureCtrl.1 :3G measurement (LTE data service exists)

   B2MeasureCtrl.2 :2G measurement (LTE data service exists)

   B2MeasureCtrl 3 :3G measurement (LTE voice service exists)

   B2MeasureCtrl.4 :2G measurement (LTE voice service exists)

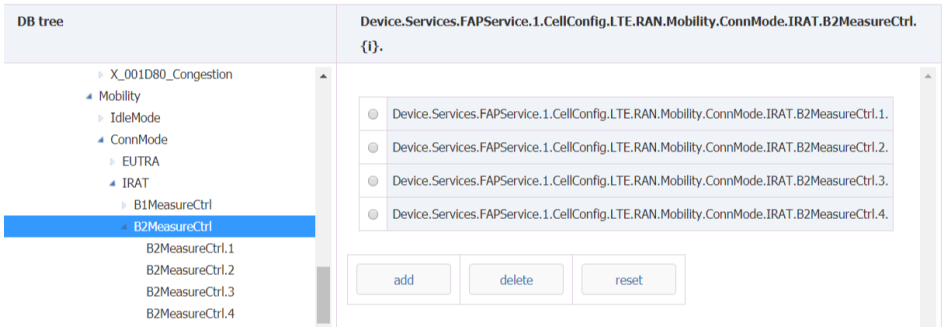


Figure 319 B2 event-

2. B2 indicates that the quality of service community is below a certain threshold and the quality of neighboring areas of different systems is above a certain threshold. When UE reports B2MeasureCtrl.4 event, the base station initiates the overlay based eSRVCC switching request.
3. After receiving the measurement report of A2MeasureCtrl 7, the base station starts the measurement corresponding to B2MeasureCtrl 4.
4. When the measurement result of UE on the main plot was less than b2threshold1eutrarsrp-hysteresis (both were actual values after conversion, as shown below, 42-140-2*0.5=-99 dBm), and the measurement result of UE on the GSM neighborhood was larger than B2Threshold2GERAN+ hysteresis-ofn (both were actual values after conversion, Ofn default was 0, as shown in figure 253, 20-110+2*0.5= -89dbm).Error: Reference source not foundAnd if it stays longer than TimeToTrigger, B2 events will be triggered and reported continuously at ReportInterval.Error: Reference source not found

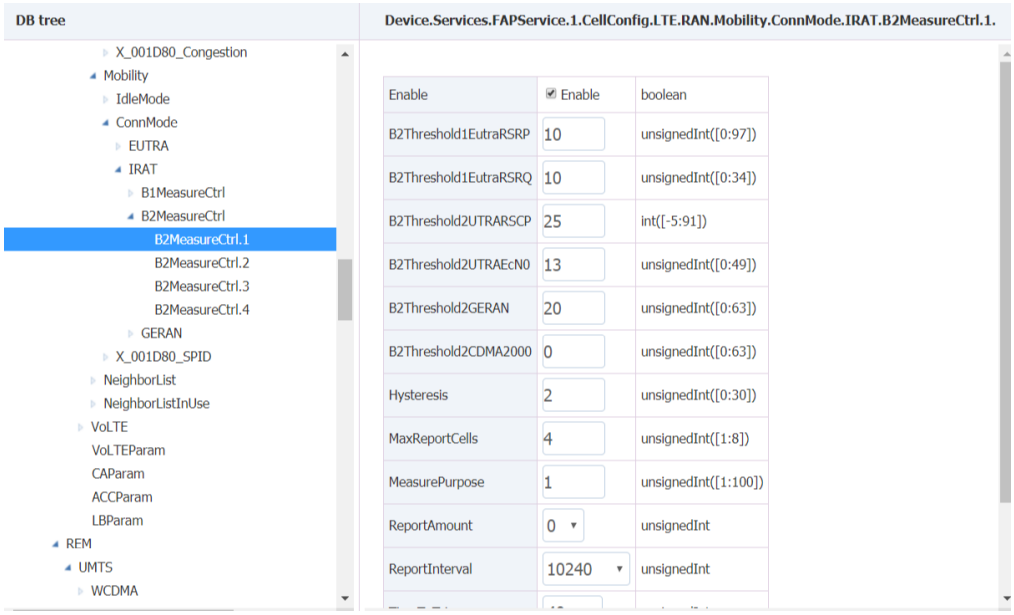


Figure 320 B2 event parameter configuration-

Table 314 B2 event configuration instructions-

The parameter name	instructions
The Enable	Enable switch, on by default
B2Threshold1EutraRSRP	B2 EUTRA RSRP trigger threshold, after subtraction of 140, is the actual value (in dBm)
B2Threshold1EutraRSRQ	
B2Threshold2UTRARSCP	
B2Threshold2UTRAEcN0	
B2Threshold2GERAN	B2 GERAN triggers the threshold. After subtracted by 110, it is the actual value (in dBm).
B2Threshold2CDMA2000	
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, in ms
TimeToTrigger	Trigger time in ms

3.2.3.5 ESRVCC based on uplink service quality

1. The eSRVCC switch based on upline service quality is triggered by event B1, as shown in figure 321. There are 4 sets of B1 configurations for different purposes. The eSRVCC switch based on upline service quality is triggered by B1MeasureCtrl.Error: Reference source not found

   B1MeasureCtrl.1 :3G measurement (with LTE data service)

   B1MeasureCtrl.2 :2G measurement (with LTE data service)

   B1MeasureCtrl.3 :3G measurement (with LTE voice service)

   B1MeasureCtrl.4 :2G measurement (LTE voice service exists)

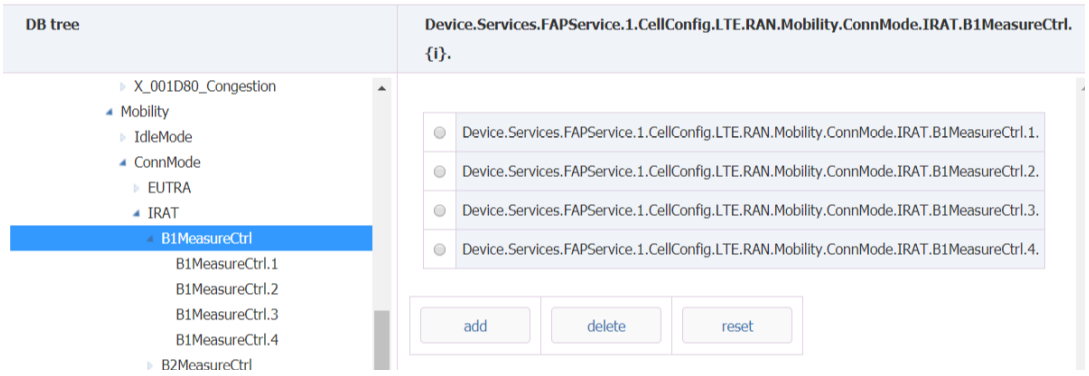


Figure 321 B1 event-

2. When the service quality of VoLTE falls below the threshold, the base station issues measurement and control based on B1MeasureCtrl 4 event to GSM adjacent area.This function is turned off by default and needs to be enabled by SrvccUlQosEnable, as shown in figure 322.Error: Reference source not foundSee table 221 for parameter descriptions.Table 315 VoLTE service quality control configuration instructions-

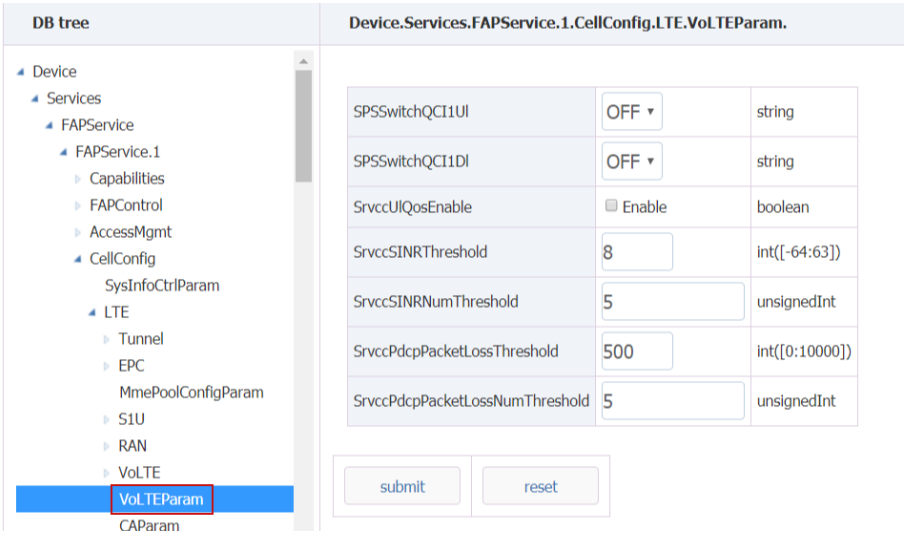


Figure 322 VoLTE business quality monitoring configuration-

Table 315 VoLTE service quality control configuration instructions-

The parameter name	instructions
SrvccUlQosEnable	VoLTE service quality eSRVCC monitoring switch, off by default
SrvccSINRThreshold	SINR monitoring threshold
SrvccSINRNumThreshold	The number of times below the SINR monitoring threshold, after which eSRVCC is triggered
SrvccPdcpPacketLossThreshold	PDCP packet loss threshold
SrvccPdcpPacketLossNumThreshold	The number of times below the PDCP packet loss threshold, after which eSRVCC is triggered

3. After receiving the B1MeasureCtrl.4 measurement report, the base station triggers eSRVCC based on uplink service quality.B1 is the trigger formula, where Mn is the measurement result of GSM neighborhood, Ofn is the frequency deviation of GSM (default: 0), Thresh is B1ThresholdGERAN, Hys is Hysteresis, so when UE's measurement result of GSM neighborhood is larger than B1ThresholdGERAN+ Hysteresis (both are actual values after conversion, as shown in figure 256,

20-110+2*0.5= -89dbm), and the retention time is greater than TimeToTrigger. $Mn+Ofn-Hys>Thresh$Error: Reference source not foundThe B1 event will be triggered and will be reported continuously at ReportInterval.Table 316 B1 event configuration instructions-

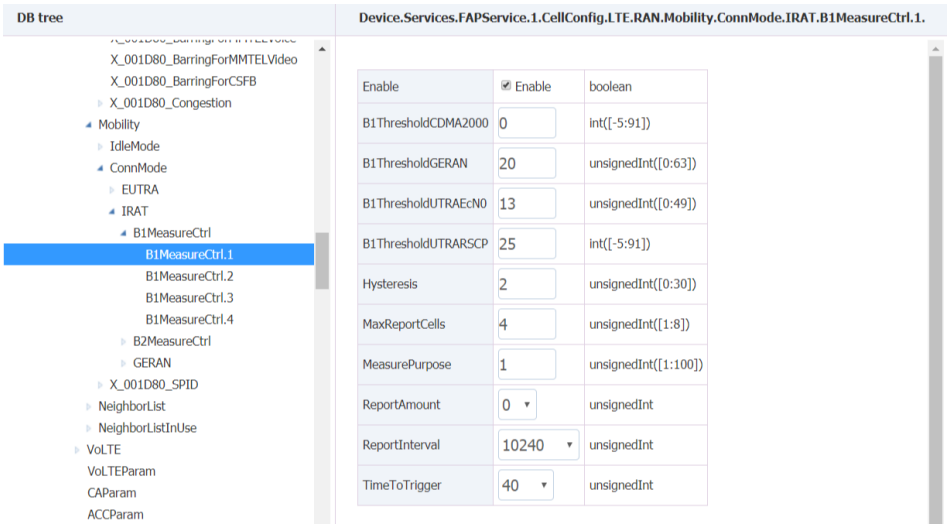


Figure 323 B1 event parameters-

Table 316 B1 event configuration instructions-

The parameter name	Value range	instructions
The Enable		
B1ThresholdCDMA2000	[- 1] goes	
B1ThresholdGERAN	[3] 0-6	B1 GERAN trigger threshold, after subtracted by 110, is the actual value (in dBm)
B1ThresholdUTRAEcN0	[0:49]	
B1ThresholdUTRARSCP	[- 1] goes	
Hysteresis	[0:30]	Trigger hysteresis, multiplied by 0.5, is the actual value (in unit dB)
MaxReportCells	[8]	
MeasurePurpose	[1:100]	
ReportAmount		Number of reports, 0 is infinite
ReportInterval		Report interval, in ms
TimeToTrigger		Trigger time in ms

Note: eNB shall correctly configure the measurement of A2 with different systems for UE (when the RSRP of the terminal downlink is at a good level, the reporting of A2 with different systems will not be triggered, but at this time, the service quality of VoLTE is below the threshold, and the measurement and control of B1 events will be triggered).

3.2.3.6 CSFB configuration

If UE does not support VoLTE, or USIM does not turn on VoLTE function, or LTE cell signal is very poor, then it will fall back to 2G when receiving calls.In this case, the base station releases the phone and carries redirectedCarrierInfo on the RRCConnectionRelease to indicate UE back down to 2G.There are two sources of GSM frequency points configured when falling back:

1. Device. Services. FAPService. 1. CellConfig. LTE. RAN. Mobility. ConnMode. IRAT. GERAN. GERANFreqGroup., as shown in figure 324.Error: Reference source not foundPlease refer to the following table for parameter description.

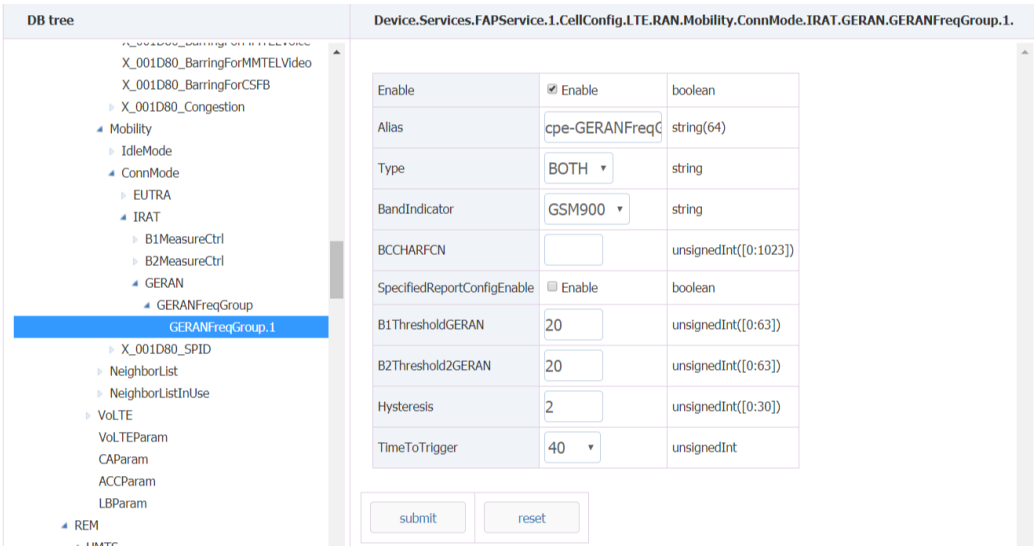


FIG. 324 CSFB frequency points-

Table 317 GERANFreqGroup configuration instructions-

The parameter name	instructions
The Enable	Can make the switch
Alias	
The Type	Default to BOTH, CSFB and SRVCC
BandIndicator	Band indicates
BCCHARFCN	Frequency point
SpecifiedReportConfigEnable	Special configuration enables each frequency point to configure different B1 and B2 event threshold, and this function is turned off by default
B1ThresholdGERAN	B1 GERAN trigger threshold, after subtracted by 110, is the actual value (in dBm)
B2Threshold2GERAN	B2 GERAN triggers the threshold. After subtracted by 110, it is the actual value (in dBm).
Hysteresis	Trigger hysteresis, multiplied by 0.5, is the actual value (in unit dB)
TimeToTrigger	Trigger time in ms

2. Device. Services. FAPService. 1. CellConfig. LTE. RAN. NeighborListInUse. InterRATCell. GSM.

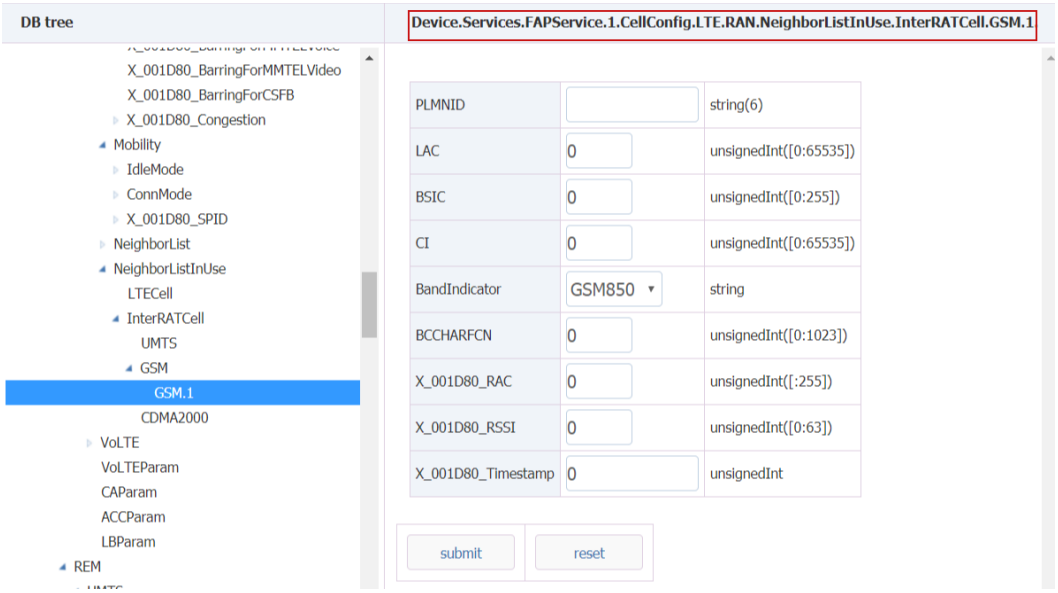


FIG. 325 CSFB frequency point -1-

Table 318 GSM neighborhood frequency point configuration-

The parameter name	instructions
PLMNID	Adjacent regions PLMN ID
LAC	Adjacent regions LAC
BSIC	Bit 7:6 - not used ("00") Bit 5:3-ncc (PLMN Color Code) Bit 2:0-bcc (BS color code)
CI	Adjacent regions Cell ID
BandIndicator	Adjacent band indication GSM850 GSM900 DCS1800 PCS1900
BCCHARFCN	Adjacent regions frequency points
The RAC	Adjacent regions RAC
RSSI	RSSI GERAN carrier
Timestamp	Last measured timestamp

3.3 Configure base station synchronization parameters

Clock synchronization refers to the strict and specific relationship between signals in terms of frequency or time. In digital communication networks
The purpose of synchronization is to keep the difference in clock frequency or time between communication devices throughout the network within a reasonable error range
To avoid the deterioration of transmission performance caused by the inaccurate timing of receiving/sending signals in the transmission system.

Clock synchronization includes frequency synchronization and time synchronization. TDD systems are time division multiplexing and must use time Synchronization, so as to avoid interference between base stations and UEs.

3.3.1 Overview

1. The base station supports three synchronization modes. When the synchronization mode switching function is turned on, the base station can switch among the three synchronization modes.

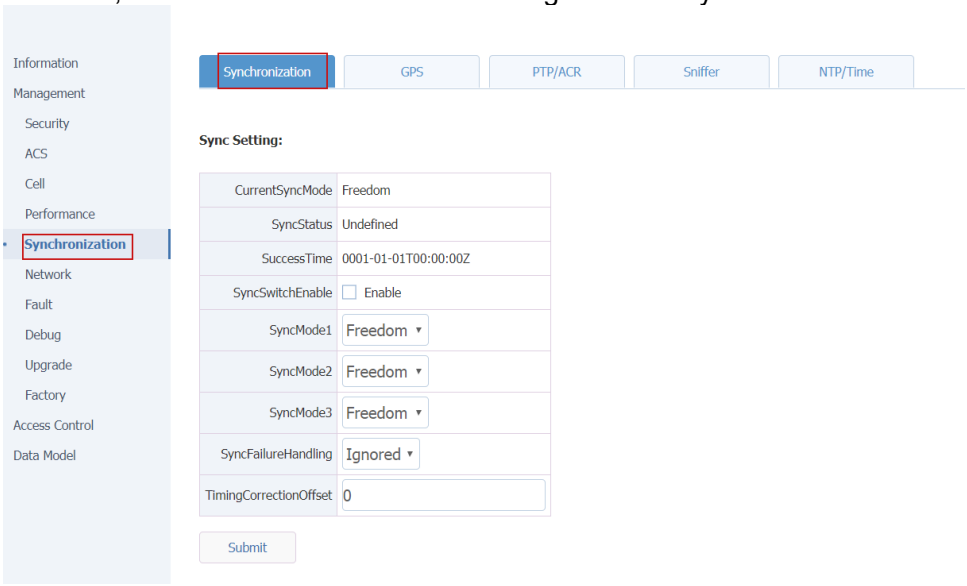


Figure 326 synchronization mode-

Synchronous technology	Frequency synchronization	Time synchronization	advantages	disadvantages
GPS/RGPS	✓	✓	Each small base station is equipped with GPS/RGPS independently, without network support.	Need to increase GPS/RGPS hardware, as well as installation and maintenance costs, high cost.
The IEEE 1588 v2	✓	✓	1. If frequency synchronization is only implemented, it can support transmission across data network and has low requirements for intermediate equipment. 2. Can realize frequency synchronization and time synchronization, and can support the clock requirements of LTE TDD. 3. Standard	1. If time synchronization is to be achieved, all intermediate network equipment shall be upgraded to support IEEE1588 protocol. 2. Clock recovery quality is susceptible to data network delay, jitter and packet loss.

			protocol, which can support interconnection between manufacturers through different profiles.	
Lip sync	✓	X	No additional hardware, no network support	Only synchronizing frequency

Note:

- SyncMode1, SyncMode2 and SyncMode3 are not used at present.
- Air port synchronization can only synchronize the frequency, generally need to cooperate with the NTP function.

2. The synchronization mode corresponds to parameters, as shown in the table.Table 319 synchronization mode-

Table 319 synchronization mode-

synchronously	instructions
Freedom	Free mode, which means no synchronization
IEEE1588V2	1588 clock synchronization, need to configure frame offset
Sniffer	Sniffer synchronization, which synchronizes directly with macro stations, does not require configuration of frame offsets
GPS	GPS synchronization, need to configure frame offset

3. Synchronize configuration parameters, as shown in the table.

Table 320 synchronization mode parameters-

parameter	instructions
SyncSwitchEnable	Sync source toggle.Default off.
SyncFailureHandling	How the base station handles synchronization failures • Default: Ignore: Ignore synchronization failure; • Restart: failure of synchronization will delete cell retry; • Reboot: failure of synchronization will restart the base station to retry;

3.3.2 GPS 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 327, and the calculation method of frame migration is shown in table 321.Error: Reference source not foundTable 321 frame migration parameter description-

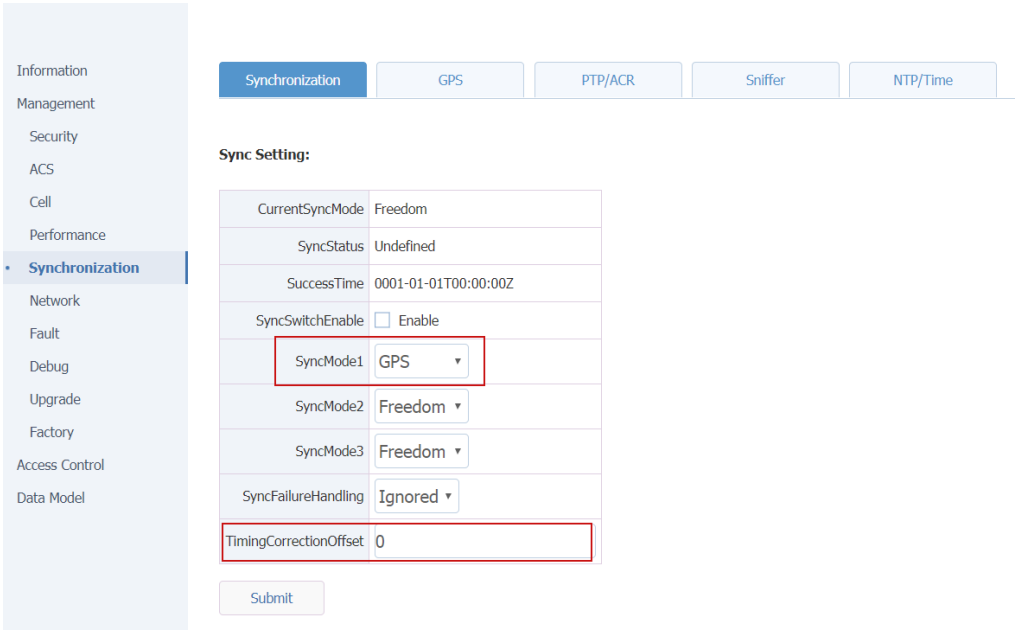


Figure 327 GPS synchronization configuration-

Table 321 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.

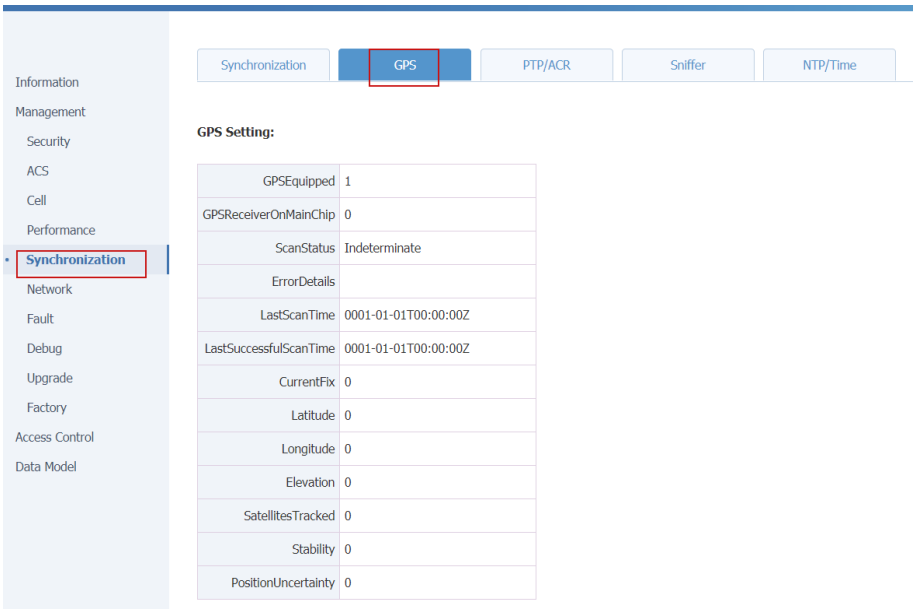


Figure 328 GPS synchronization status-

3.3.3 IEEE1588v2 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 3-30.
   - Select "Ethernet" for Transport;
   - Role select "Slave";

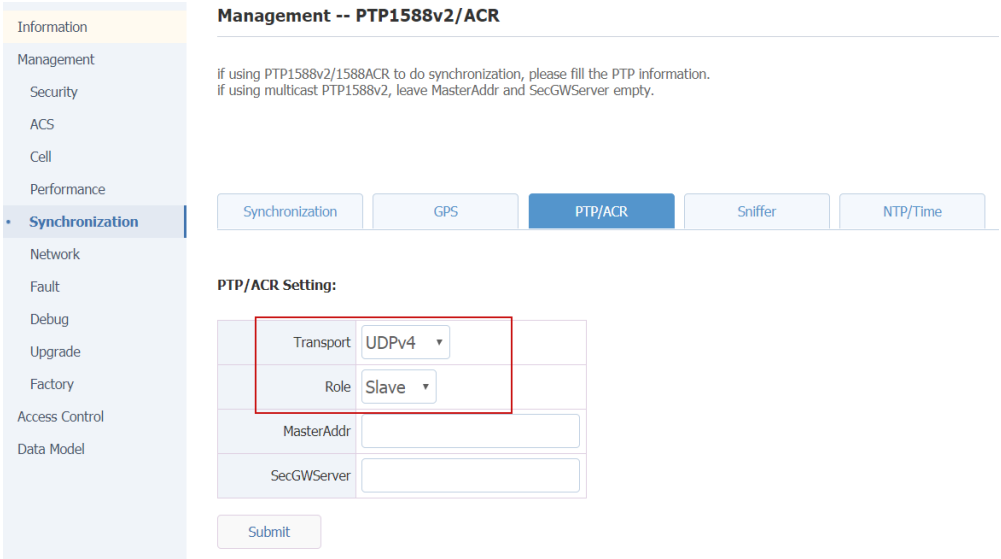


FIG. 329 1588 PTPv2 multicast mode-

3. The 1588 PTPv2 unicast mode configuration is shown in figure 3-31.

- Select "Ethernet" for Transport;
- Role select "Slave";
- MasterAddr fill in the IP address of the master clock;
- In the PTP over IPsec scenario, you need to specify the security gateway address.SecGWServer fill in the security gateway IP address.

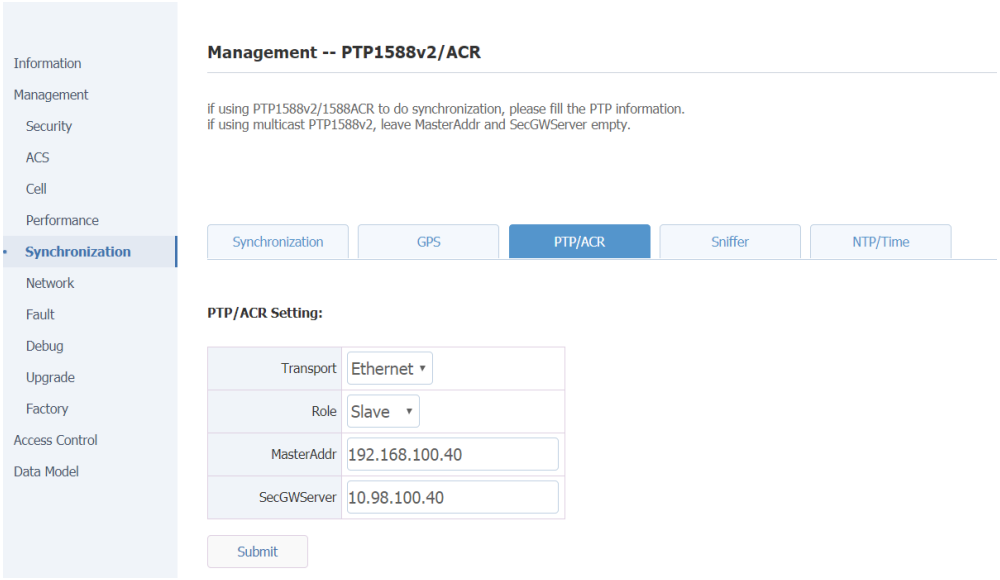


Figure 330 1588 PTPv2 unicast mode-

4. For configuring frame offset, see the frame offset configuration instructions in table 3-21
5. After setting the above synchronization parameters, set the synchronization mode to "PTP1588";

Note: after modifying the synchronization mode, the base station takes effect by restarting and performs the synchronization.

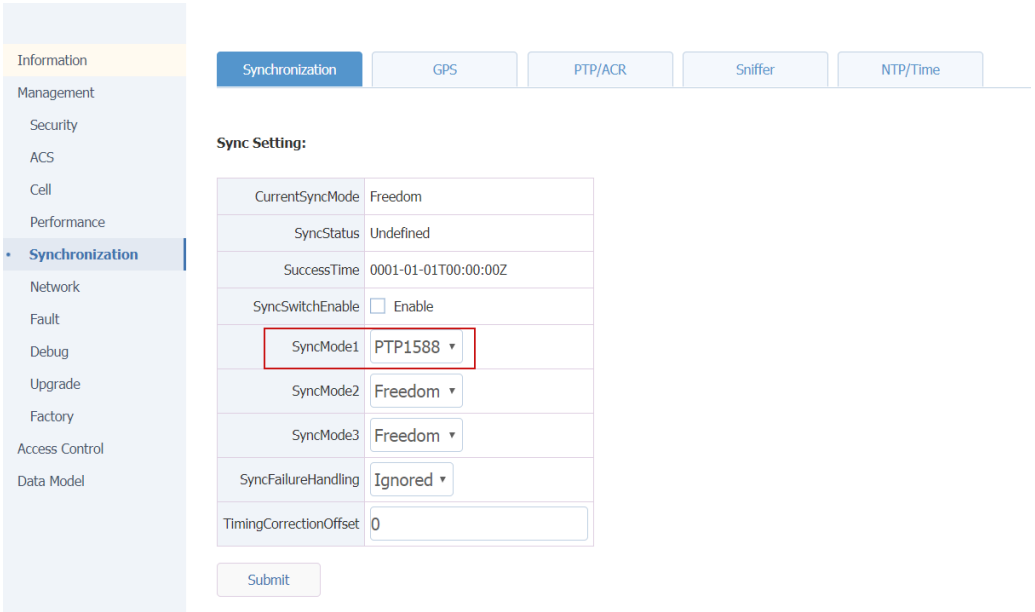


Figure 331 1588 PTPv2 synchronization configuration-

6. Restart the base station and perform 1588PTP synchronization;
7. After the base station restarts, check the synchronization status, as shown in the figure below.

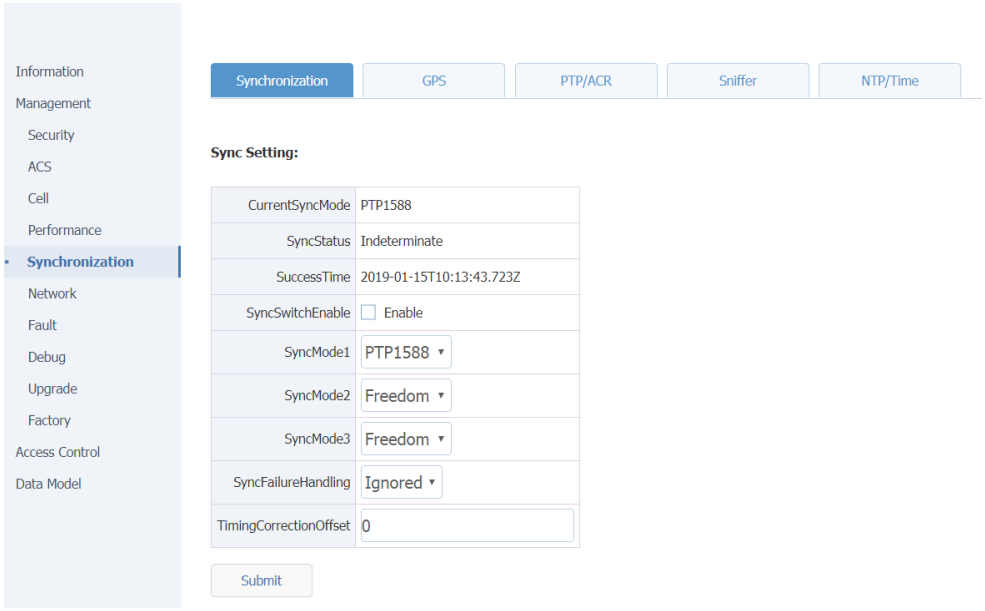


Figure 332 1588 PTPv2 synchronization status-

3.3.4 Sniffer synchronization

1. Configure the frequency points for Sniffer, as shown in the figure.

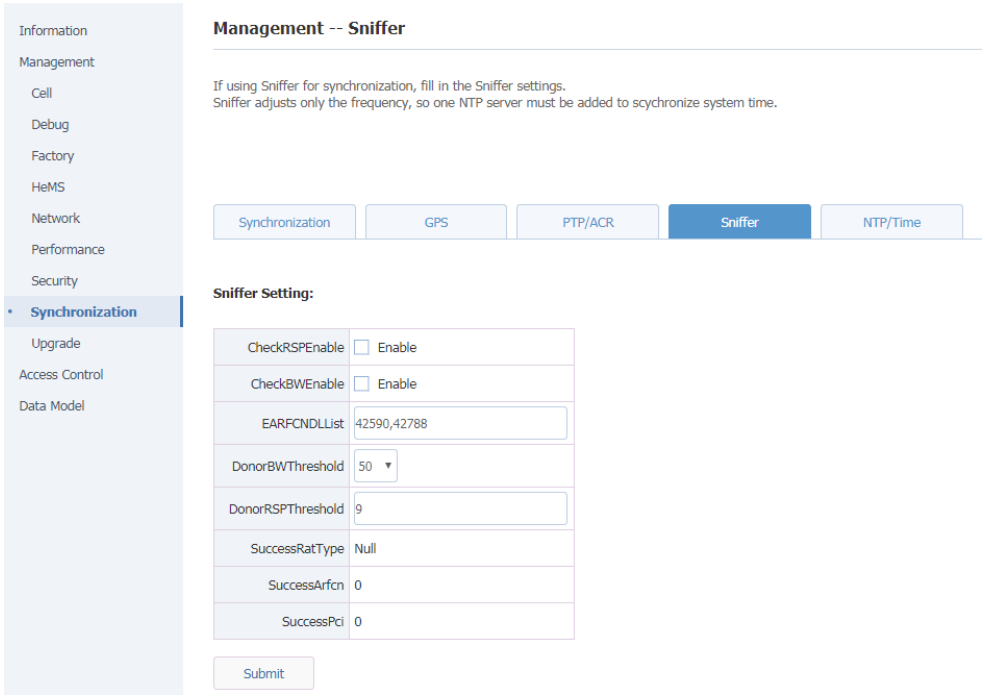


Figure 333 setting of the same step frequency of Sniffer-

2. Set the synchronization mode to "Sniffer";

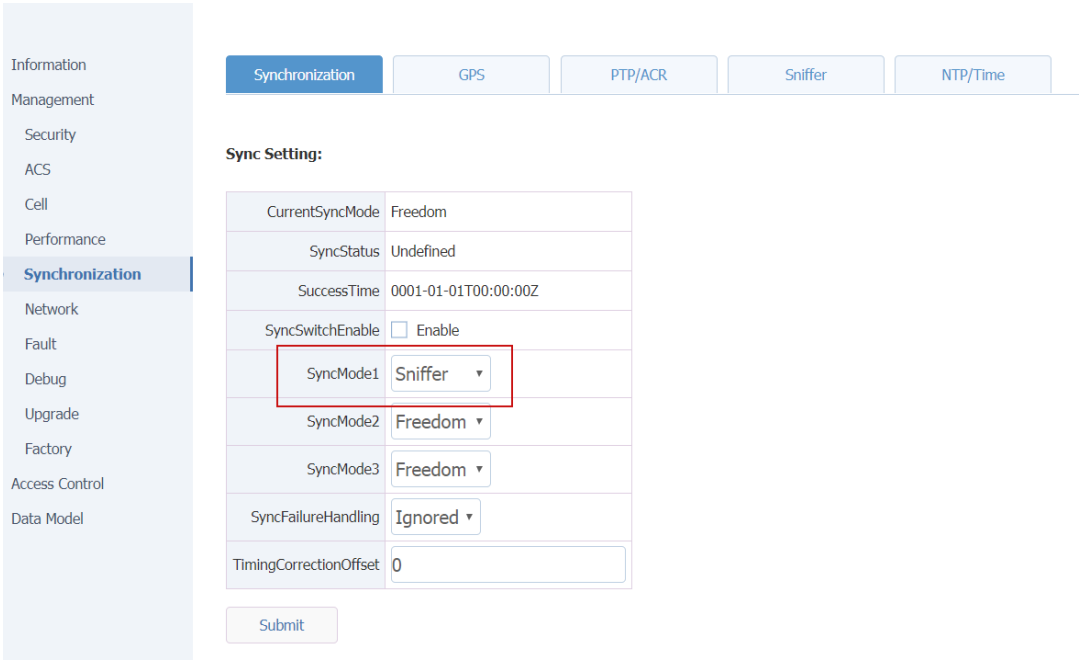
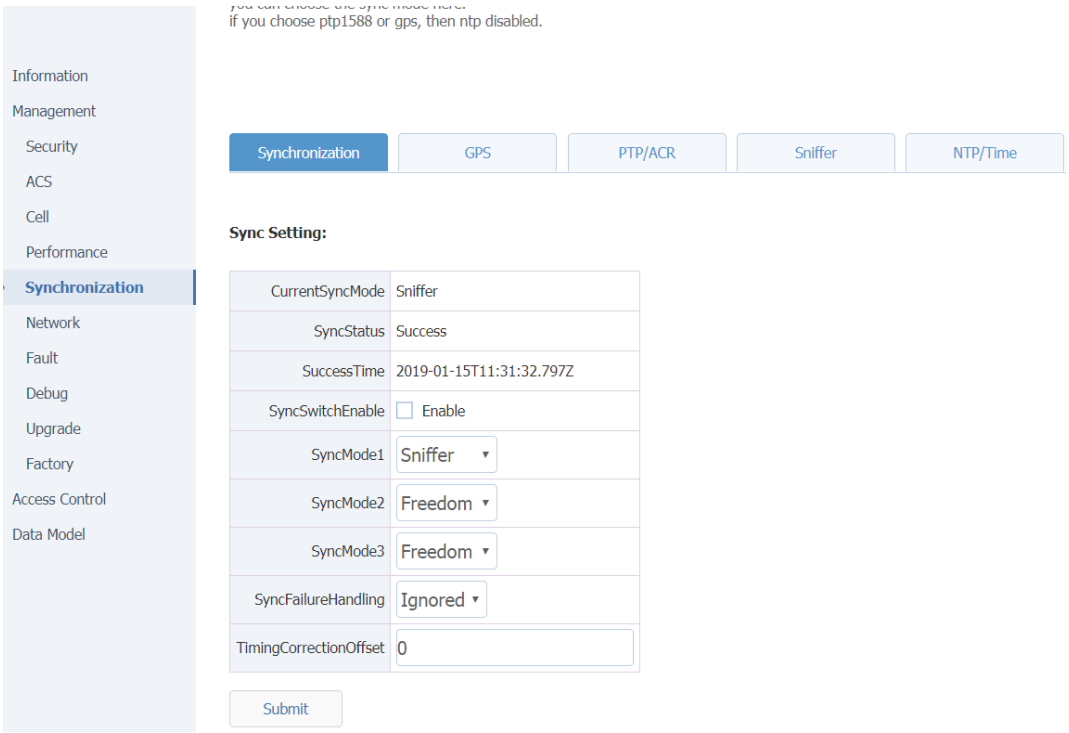


Figure 334. Sniffer synchronization configuration-

3. After the configuration of synchronization parameters is completed, restart the base station and perform synchronization;
4. After the base station restarts, check the air port synchronization status, as shown in the figure below.



3.3.5 The free mode

1. Set synchronization mode to "Freedom";
2. In free mode, the base station will not synchronize with any synchronous source, relying only on

its own crystal oscillator to ensure frequency deviation.

4. Configure system parameters

4.1.1 Software version upgrade

Select "management-> Upgrade" in the navigation bar to enter the version Upgrade page, as shown in the figure.Figure 41 version upgrade-

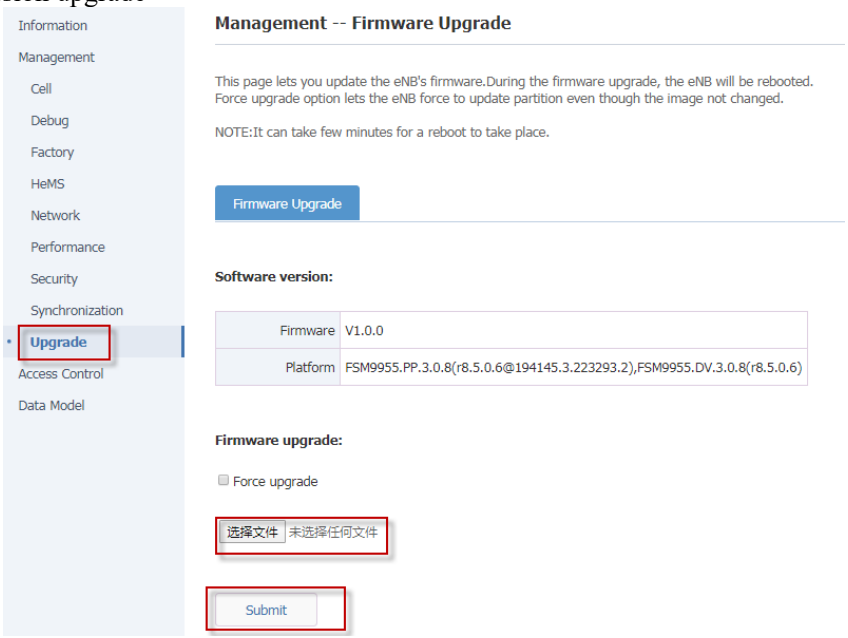


Figure 41 version upgrade-

4.1.1.1 Software upgrade

1. Click "Browser file", select the upgrade file and upload it to the base station.
2. Click Submit to upgrade.
3. The base station restarts and performs the audit, waiting for approximately 3-5min.After successful upgrade, the page will be prompted accordingly.
4. The updated version can be confirmed through the "Information" page of the base station.

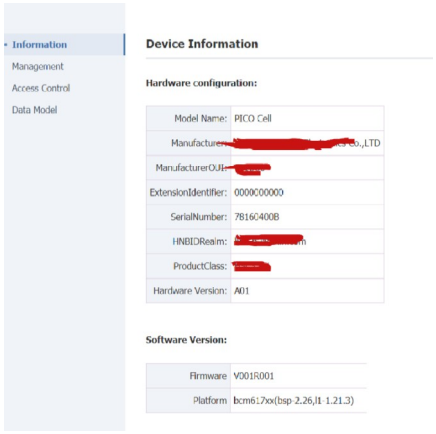


Figure 42 confirms the updated version-

4.1.1.2 Version back

1. In the event that the base station firmware upgrade fails, the base station will automatically revert back to the available version prior to the upgrade.
2. It is also possible to upgrade back to the previous version through the normal version upgrade operation.

4.1.2 System file backup

4.1.2.1 Import/export configuration files

1. Select "Data Model" in the navigation bar and enter the DB import/export page, as shown in the figure.Error: Reference source not found

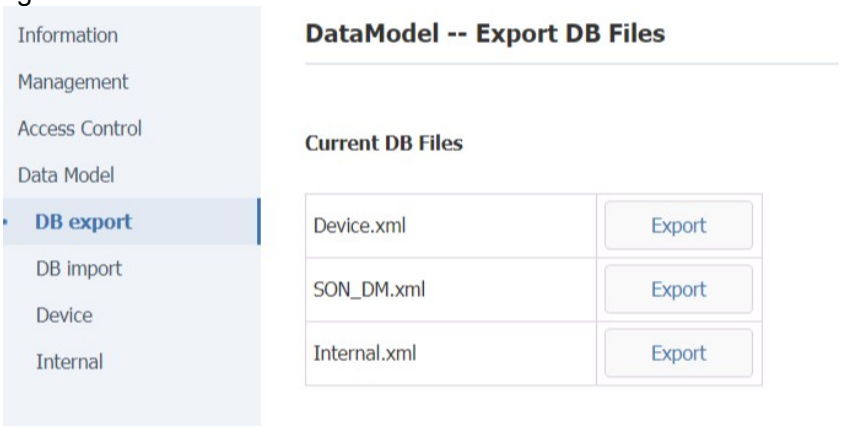


Figure 43 DB export import-

2. Export/Import to Export and Import data files.

4.1.2.2 Export log file

1. Select "management-> Debug" in the navigation bar to enter the log operation interface, as shown in the figure.

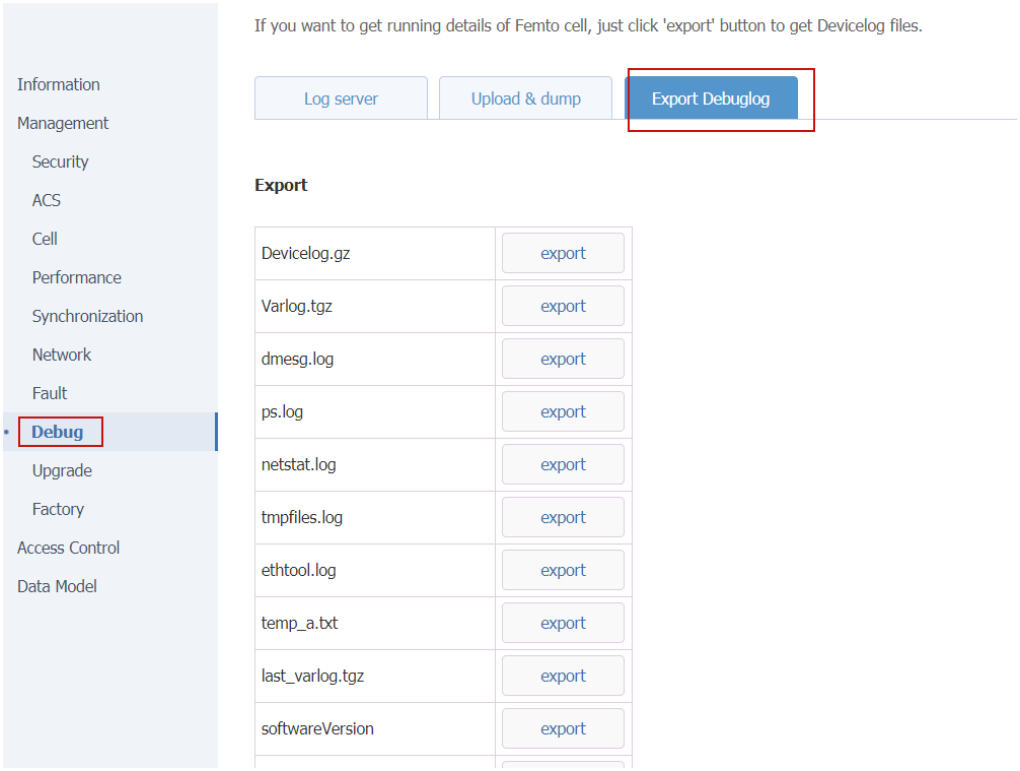


Figure 44 exports the log file-

2. Select the log you want to Export, and click "Export".
3. Save the log file locally by selecting the save path in the download dialog box that pops up.

4.1.3 Restart the base station

1. Select "management-> Factory" in the navigation bar.
2. Click "Reboot" to restart the base station.
3. Base station restarts usually take 3 to 5 minutes.

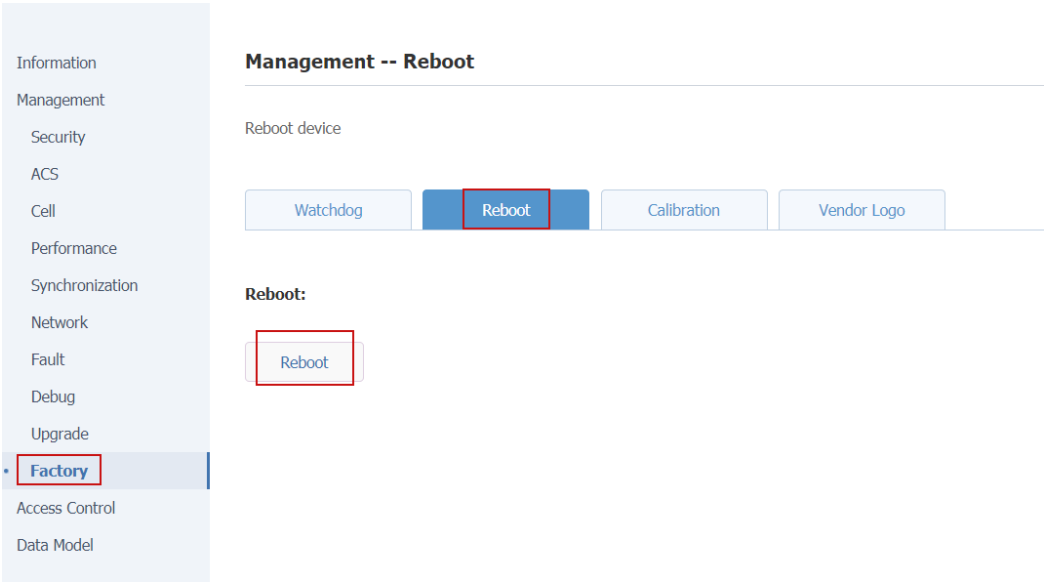


FIG. 45 restart base station-

5. Common debugging function

5.1 The Trace log function

5.1.1 Capture base station logs using a dedicated logviewer tool

The configuration is shown in the figure.

1. Enter the IP address of the crawl log PC.
2. Click Submit to Submit.

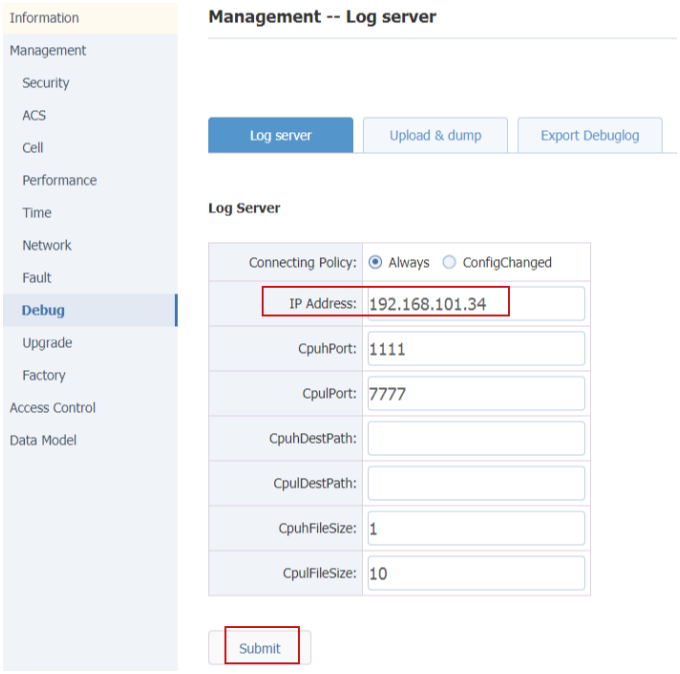


Figure 51 sets the logviewer address-

Table 51 parameter description-

The parameter name	instructions
The IP Address	Run the PC IP address of logviewer

5.1.2 Upload the logviewer log automatically

Sometimes the logviewer tool is not easy to install, consider having the base station upload the logviewer source file directly to the specified server

Then use the logviewer tool to view it

1. Turn on automatic upload

   Device. X_D837BE_DebugMgmt. Upload. Enable = 1

2. Set the automatic upload cycle

   Device. X_D837BE_DebugMgmt. Upload. PeriodicTraceUploadInterval

3. Choose "VendorTraces" for cyclical upload strategy

   Device. X_D837BE_DebugMgmt. Upload. PeriodicUploadPolicy = VendorTraces

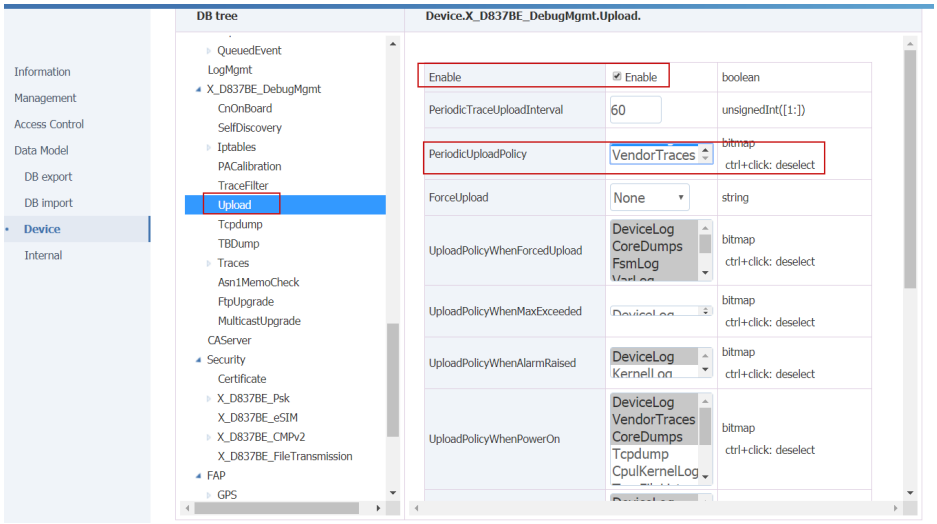


Figure 52 turn on the automatic upload log function-

4. Set upload server address and authentication information.

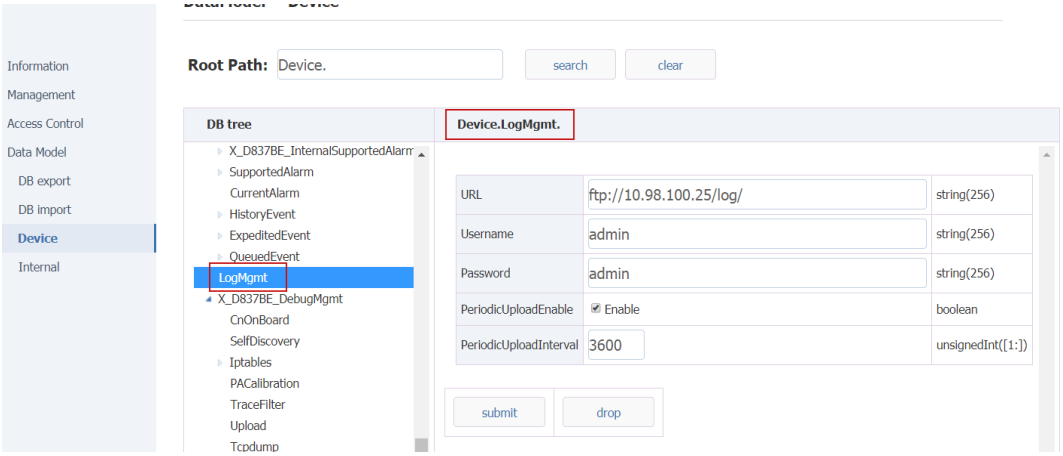


Figure 53 sets upload server parameters-

Table 53 parameter description-

The parameter name	instructions
The URL	Log automatic upload path. Such as: ftp://10.98.100.80/log/
The Username	Server username
The Password	Server password
PeriodicUploadEnable	Cycle automatically upload enable switch

5.2 Other Trace logs are automatically uploaded

Base station supports the function of automatic log uploading, which can upload log files to FTP server.As shown in the figure.

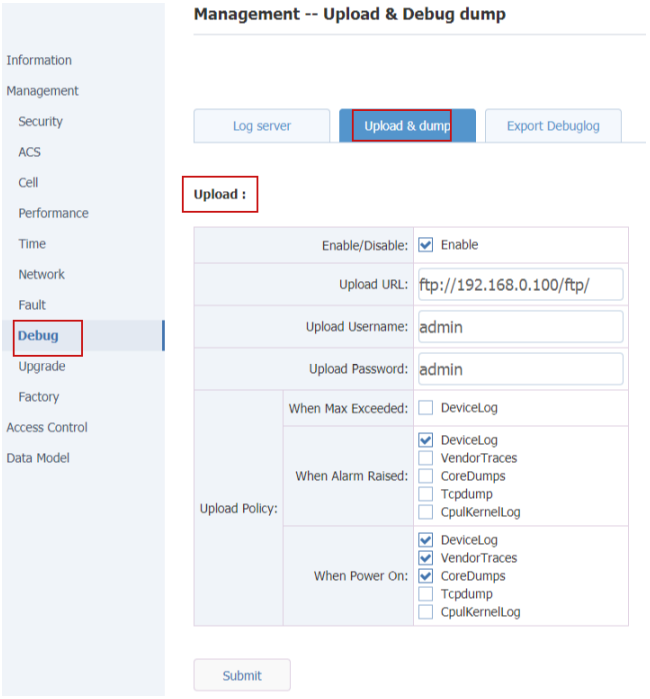


Figure 54 automatically uploads Trace log Settings-

Table 54 parameter description-

The parameter name	instructions
The Enable	Can make the switch
The Upload URL	FTP server address
Upload the Username	FTP server user name
Upload the Password	FTP server password
Upload the Policy	Log upload policy, by default

5.3 TCP Dump function

Base station supports opening TCP Dump function to grab base station network interface messages.This is shown below.

1. Choose Interface;
2. Select the corresponding protocol in Filter Type. If other types of packets (such as icmp) are to be captured, select OTHERS and Expression to fill in icmp.
3. Check the Enable;
4. After configuration, click Submit, as shown in figure 6-3.
5. Export the tcpdump file through the Web interface, as shown in figure 6-4;
6. Wireshark looks at tcpdump, as shown in figure 6-5.
   - Open tcpdump.rar. Open the tcpdump.log file with wireshark.

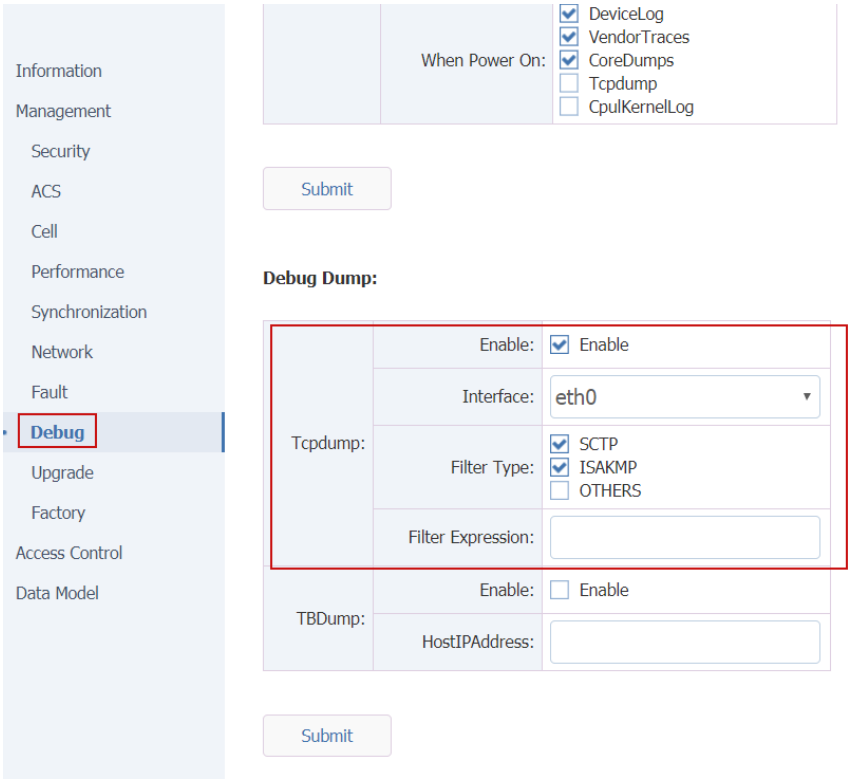


Figure 54 TCP Dump Settings-

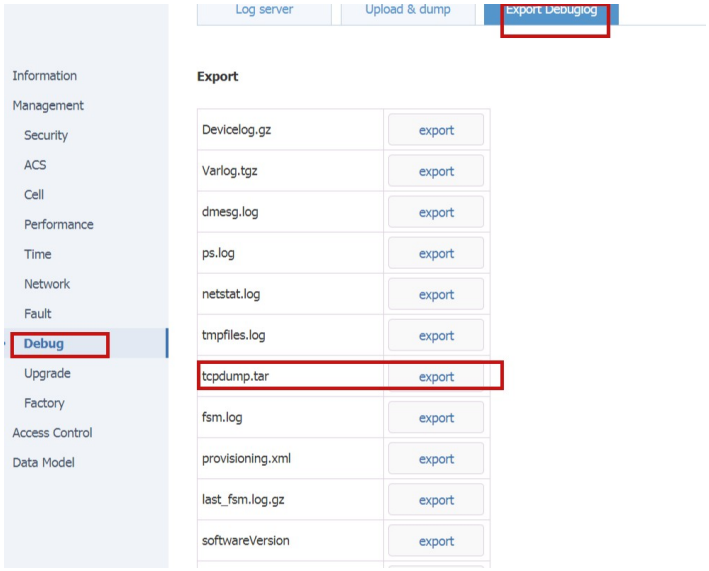


Figure 56 exports the tcpdump file-

Export tcpdump.log file to desktop and open with Wireshark.

Figure 55 shows the tcpdump file-

Table 55 parameter description-

The parameter name	instructions
The Enable	Can make the switch
Interface	Base station network interface, through the drop-down selection
The Filter Type	Common catch types

	• Check "OTHERS" when filtering other types of messages
A Filter Expression	When fetching messages other than the usual type, fill in, such as icmp.

5.4 Telnet function

For security reasons, the Telnet function of the base station is turned off by default.The Telnet function of the power base station can be configured by modifying the data model configuration, as shown in figure 5-8.

1. Check the "TelnetEnable" Enable identification;
2. Click submit for the configuration to take effect.
3. After the configuration is committed, the Telnet function is enabled.The base station can be accessed by Telnet.

   User name: root

   Password: MikroTik

Note: the Telnet function fails after the base station is restarted and needs to be reenabled.

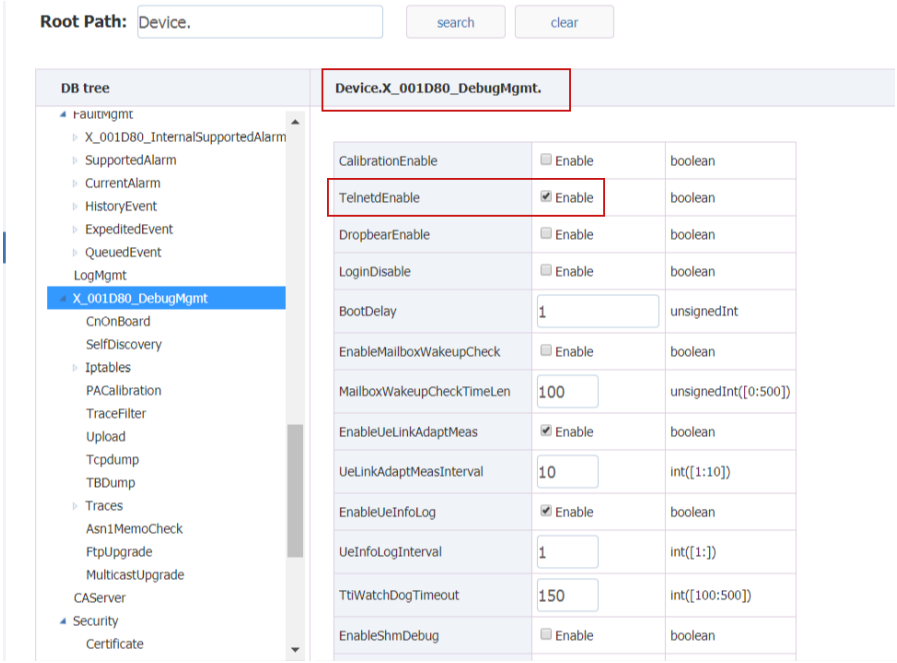


Figure 56enable base station Telnet function-