SBC Advance Configuration Practice Guide

Foreword

- This course will introduce some common advanced features of SBC, and will describe the scenarios and configuration of these features.

Course Objective

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Through this course you will be able to

Understand some of the advanced configurations of SBC.

Understand the application scenarios of the features.

Understand the configuration of the features.

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1 Number Profile

2 Number Manipulation

3 Number Pool

4 SIP Account

5 SIP Header Manipulation

6 SIP Header Passthrough

7 Trunk Group

8 SIP Security

9 Other

Number Profile

01

1.1 Application Scenarios of Number Profile

1.2 Configuration of Number Profile

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Number Profile

Application scenarios of Number Profile

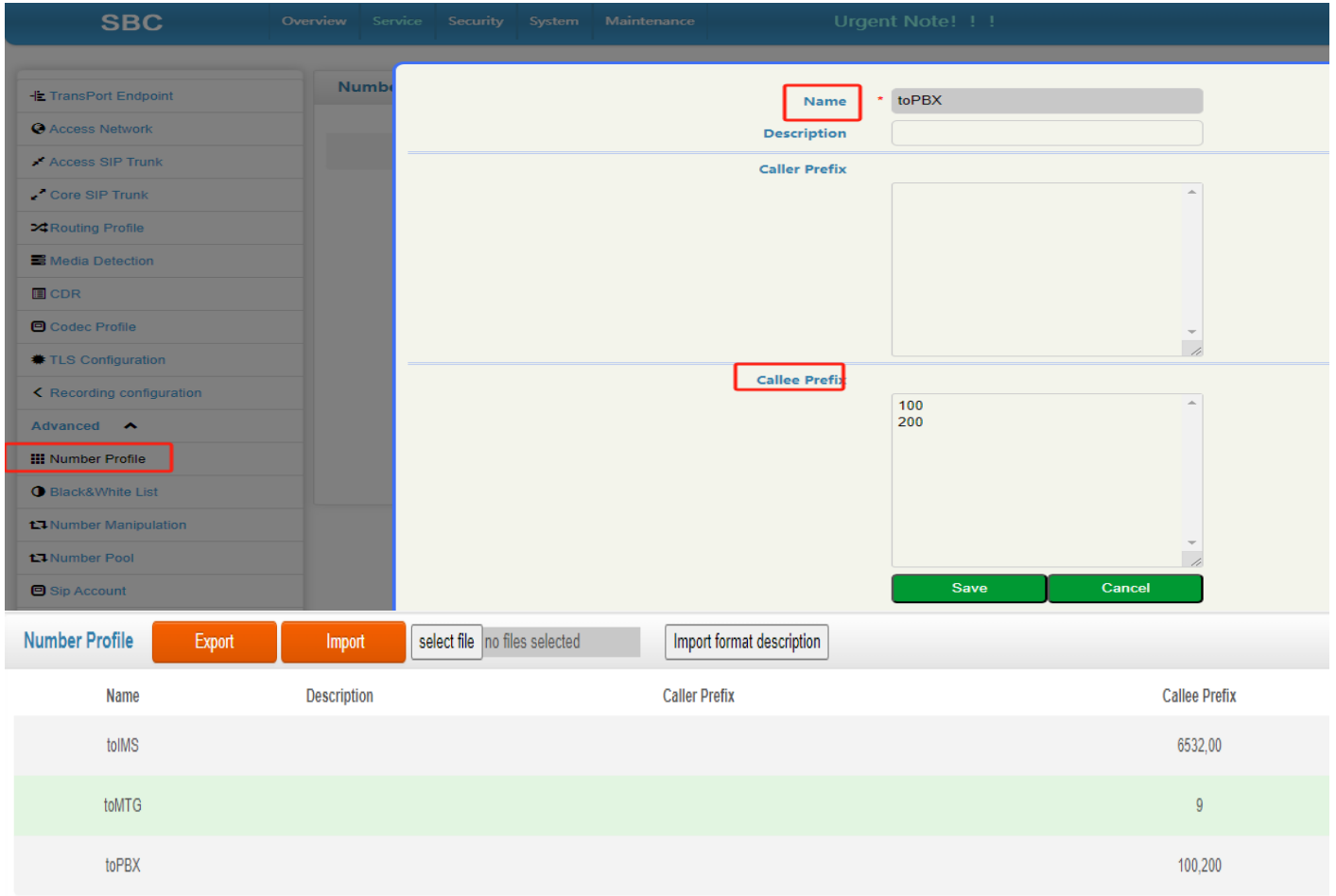
Number Profile is an important feature in SBC which is mainly used for calling/called number prefix matching during call routing. Then different call routes are applied according to the matched prefixes.
SBC may trunk to multiple platforms or devices. Then you can use the number prefix to match different routes and select different destinations.

Number Profile

Configuration of Number Profile

- Add Number Profile

1. Click on **Service-Number Profile**
2. Custom name
3. Configure called prefix
4. Configure other number Profile using the same method

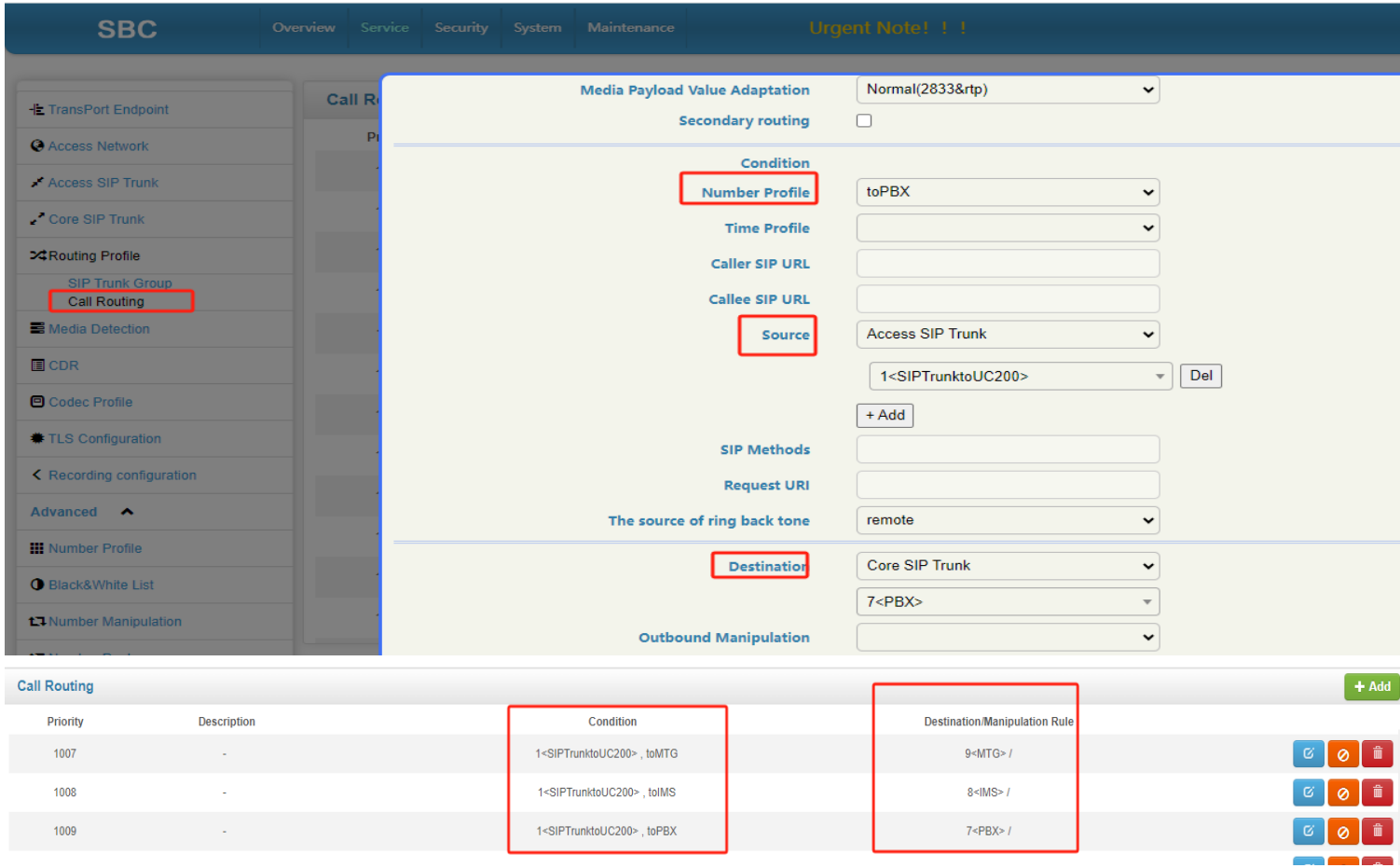


Number Profile

Configuration of Number Profile

- Routing Configuration

1. Click on **Service-Routing Profile-Call Routing**
2. Select number profile
3. Select source
4. Select the destination corresponding to the number profile



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Number Manipulation

02

2.1 Application Scenarios of Number Manipulation

2.2 Configuration of Number Manipulation

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Number Manipulation

Application scenarios of Number Manipulation

Number Manipulation is used to transform the calling/called number into a specified calling/called number according to rules.

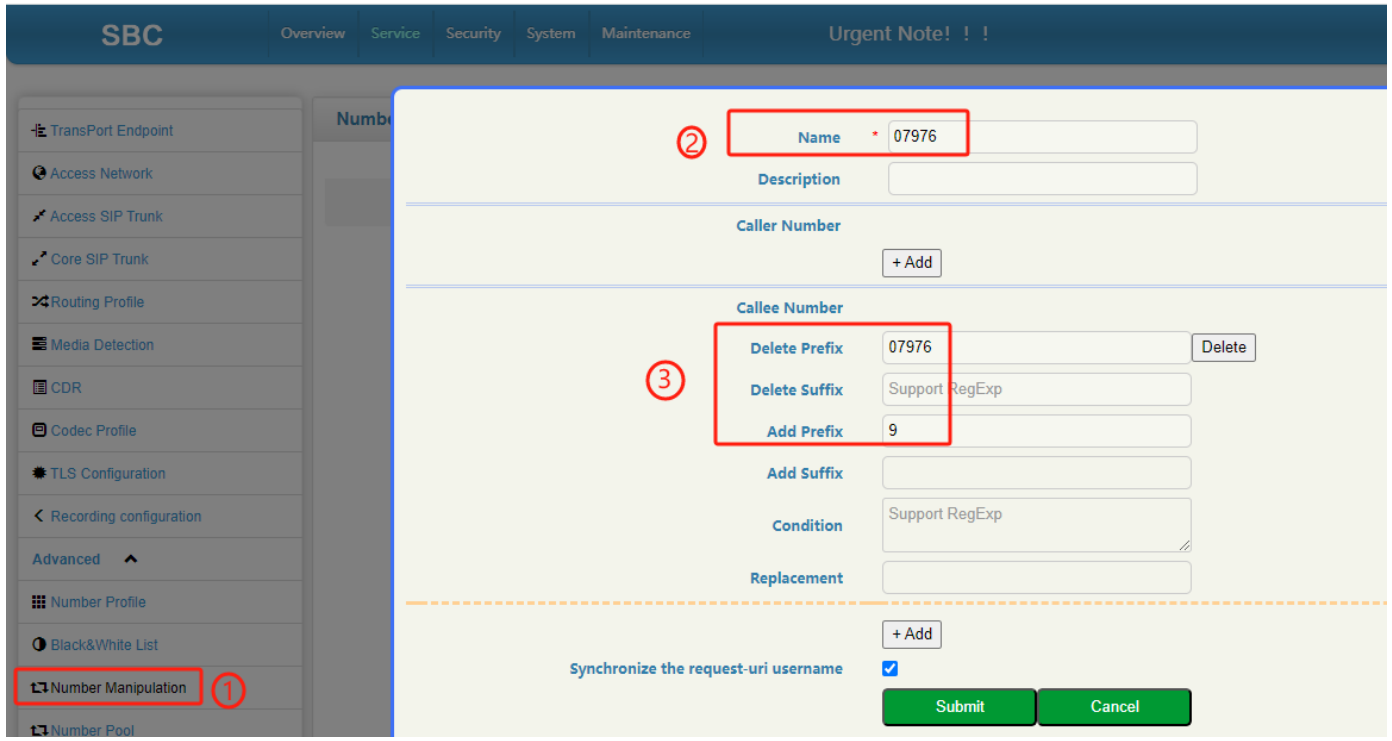
The Number Manipulation rule processes the number sequentially Delete Prefix, Delete Suffix, Add Prefix, Add Suffix, and then matches the replacement condition

Example: Incoming call to IPPBX through SBC, the called number is 07976xxx of the line, and it is requested to be converted to 9xxx, and then sent to IPPBX

Number Manipulation

Configuration of Number Manipulation

1. Click on **Service-Number Manipulation**
2. Custom name
3. Select the callee number, delete prefix fill in 07976, add prefix fill in 9

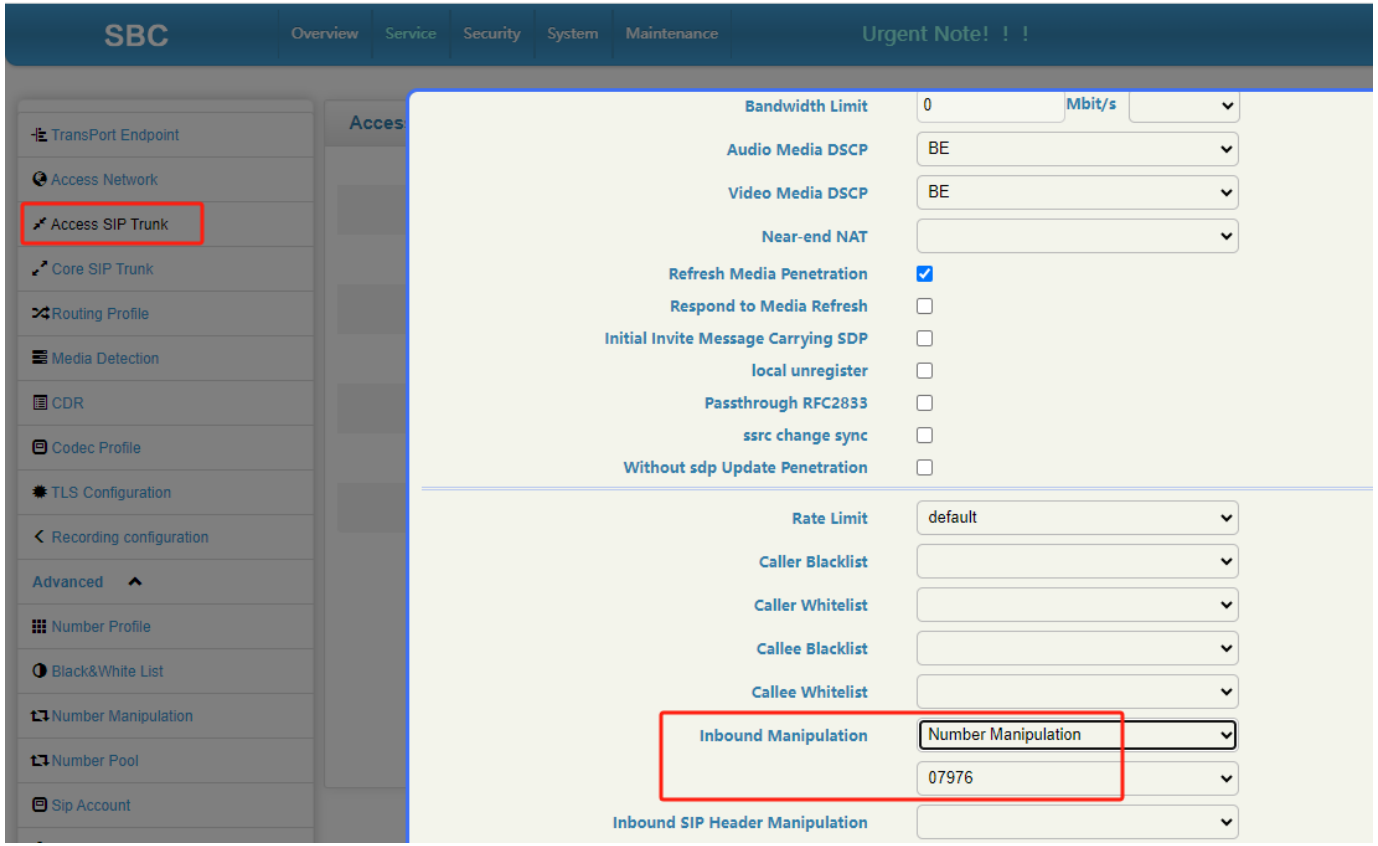


Number Manipulation

Configuration of Number Manipulation

- Method 1

1. Click on **Service-Access SIP Trunk**
2. Inbound Manipulation Select the corresponding number manipulation



Number Manipulation

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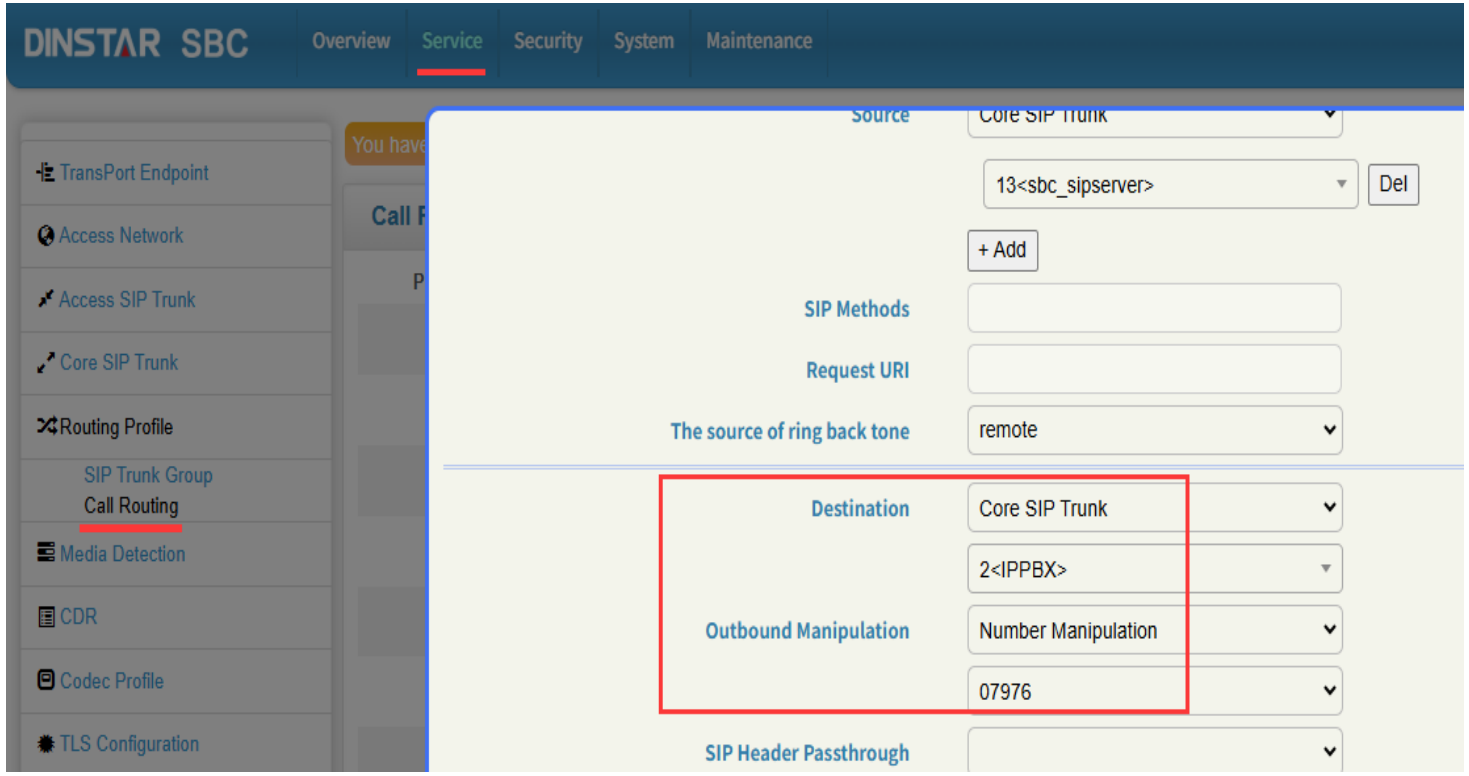
Configuration of Number Manipulation

Method 2

1. Click on **Service-Routing Profile-Call Routing**
2. Select the corresponding route
3. Outbound Manipulation Select the corresponding number manipulation



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Number Pool

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3.1 Application Scenarios of Number Pool

3.2 Configuration of Number Pool

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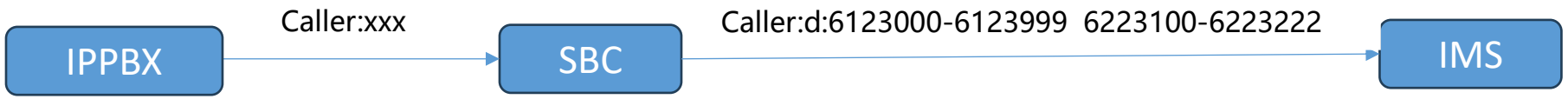
Number Pool

Application scenarios of Number Pool

In Inbound Manipulation and Outbound Manipulation, we can select Number Pool. When selected, the calling or called number will be randomly replaced by the number in the number pool.

For example, for an outbound call to IMS, the caller must be provided by IMS. The case range is 6123000-6123999, 6223100-6223222.



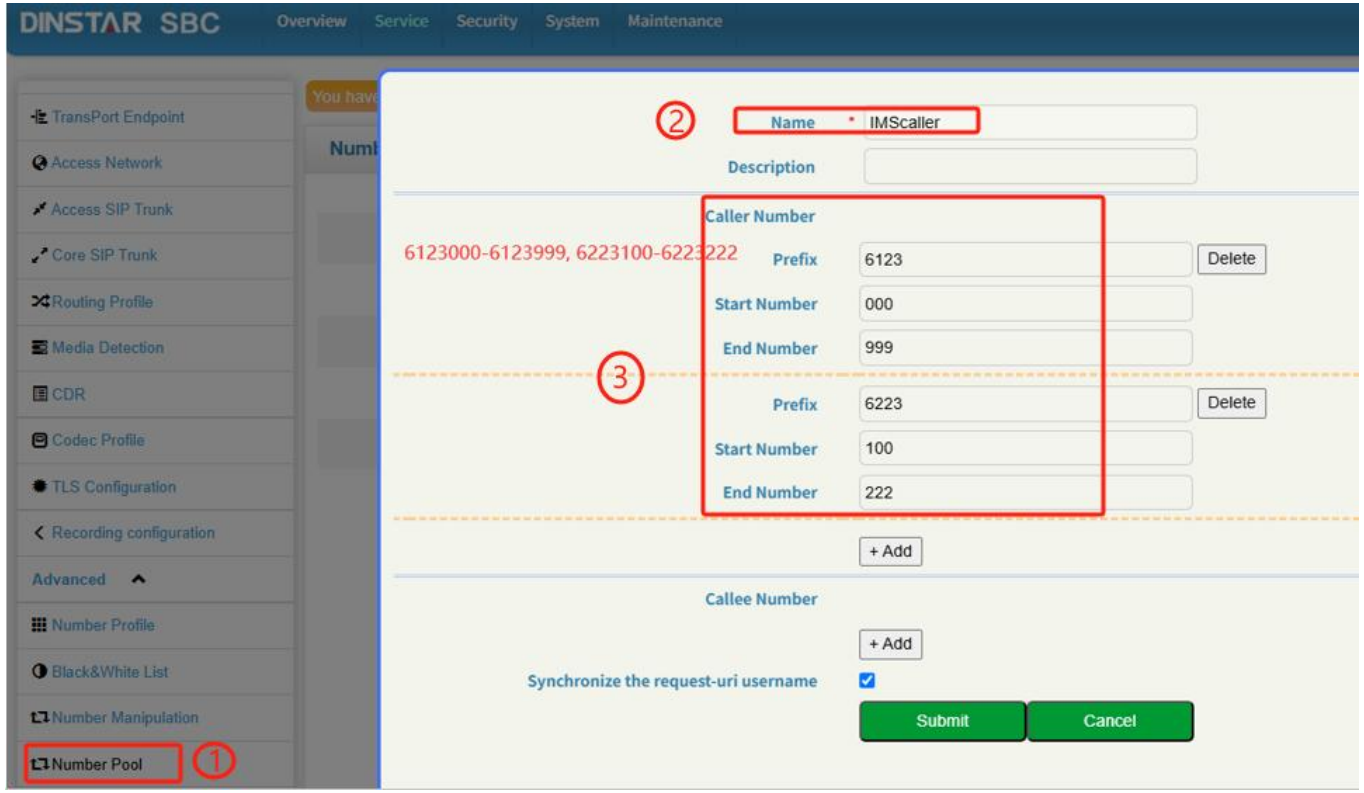
Number Pool

Configuration of Number Pool

1.Click on **Service-Number Pool**

2.Custom name

3.Select the caller number, Configure prefix, starting number, and ending number

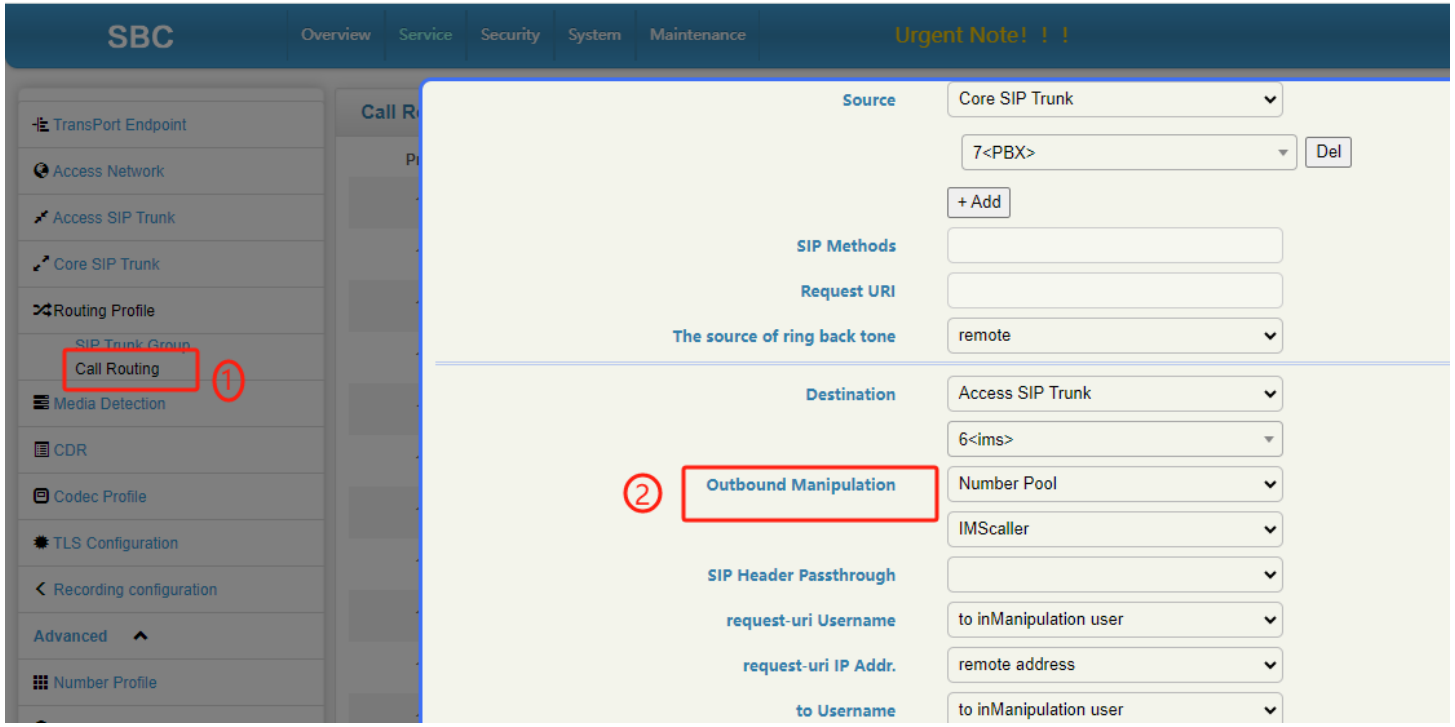


Number Pool

Configuration of Number Pool

- Method 1

1. Click on **Service-Routing Profile-Call Routing**
2. Select the corresponding route, Outbound Manipulation Select Number Pool

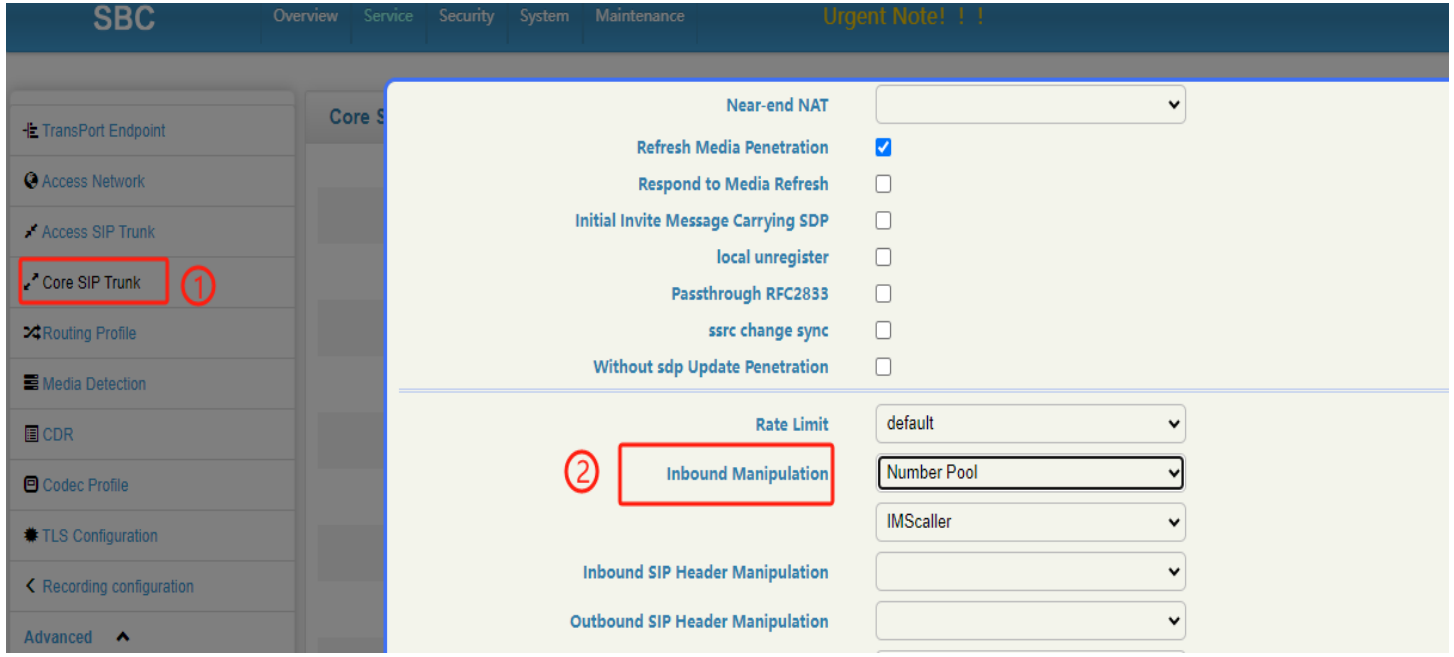


Number Pool

Configuration of Number Pool

- Method 2

1. Click on **Service-Core SIP Trunk**
2. Select PBX, Inbound Manipulation Select Number Pool



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SIP Account

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4.1 Application Scenarios of SIP Account

4.2 Configuration of SIP Account

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SIP Account

Application scenarios of SIP Account

SIP Account, used to configure the account that the SBC registers with the server.

SIP Account can be configured with many accounts, while Registration in Trunk can only be configured with one account.

When SIP Account is selected in Trunk, it is registered as a SIP client to SIP Server, and the caller will be replaced by the value of SIP account when calling to SIP Server.

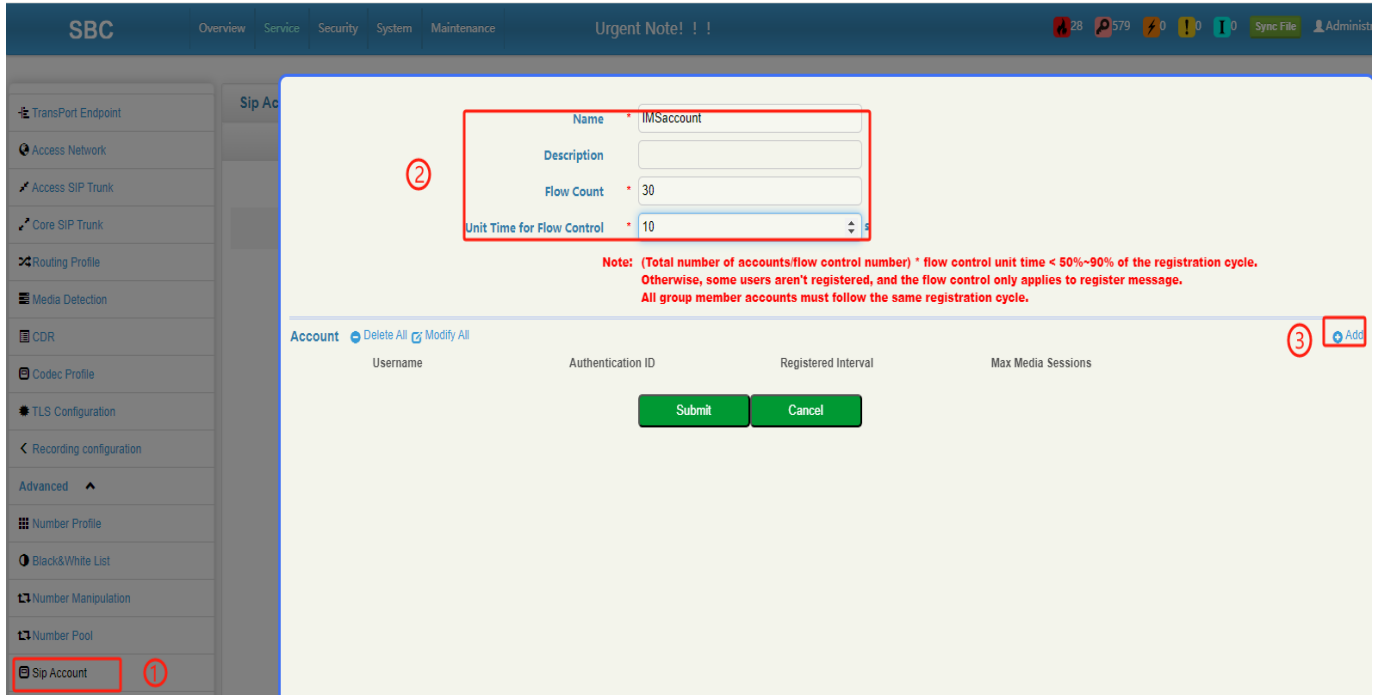
The Registration in the Trunk is registered to the Server, and the caller will not be replaced by the SIP account value when calling to the SIP Server, it is the caller of the source.

SIP Account

Configuration of SIP Account

For example, if the account number provided by IMS is 987100--987129 and the password is admin987#, we can set it as follows

1. Click on **Service-SIP Account**
2. Configure name and flow control
3. Click add to add SIP account

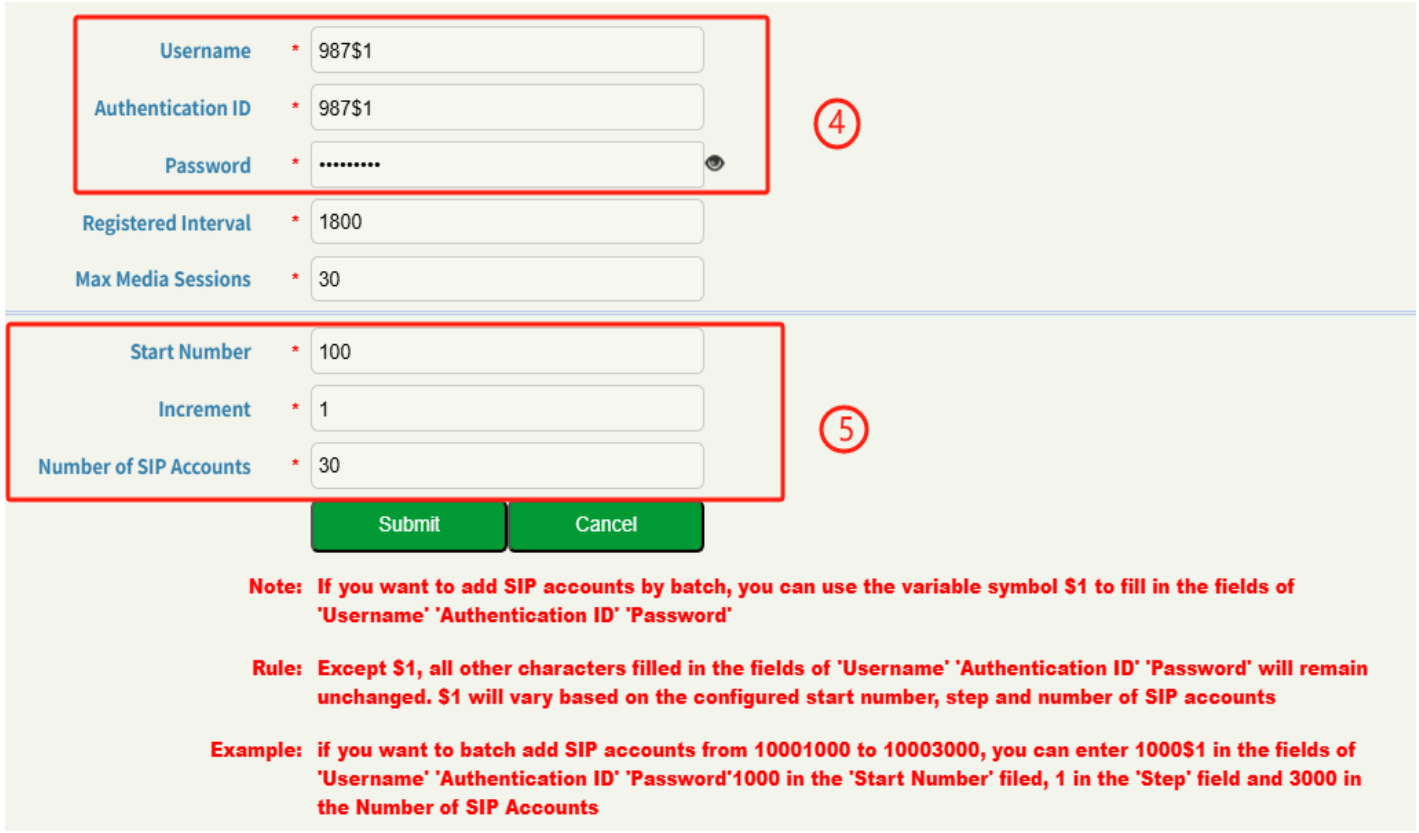


SIP Account

Configuration of SIP Account

4.Configure username, authentication ID, and password

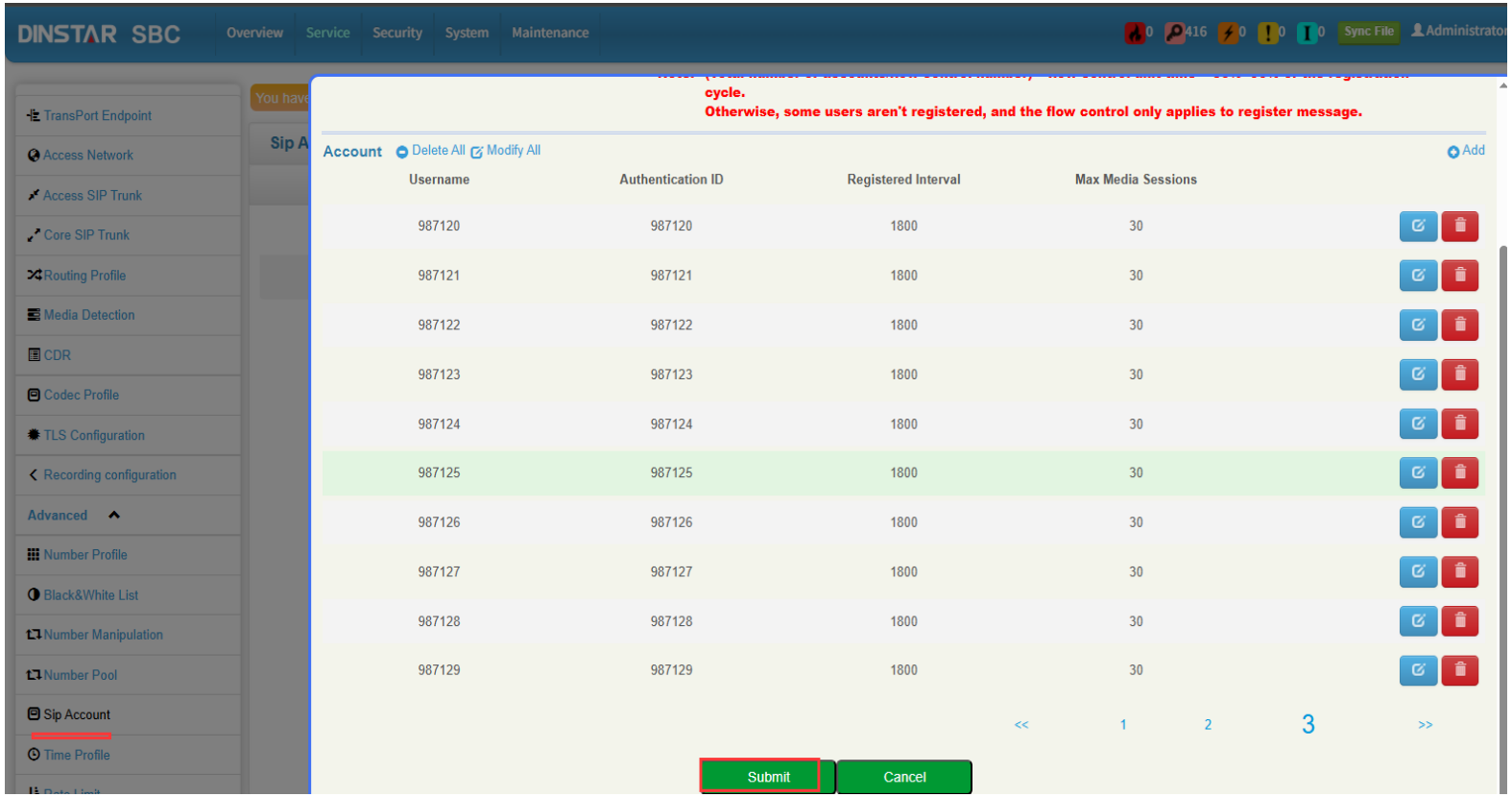
5.Configure start number , increment and number of SIP accounts



SIP Account

Configuration of SIP Account

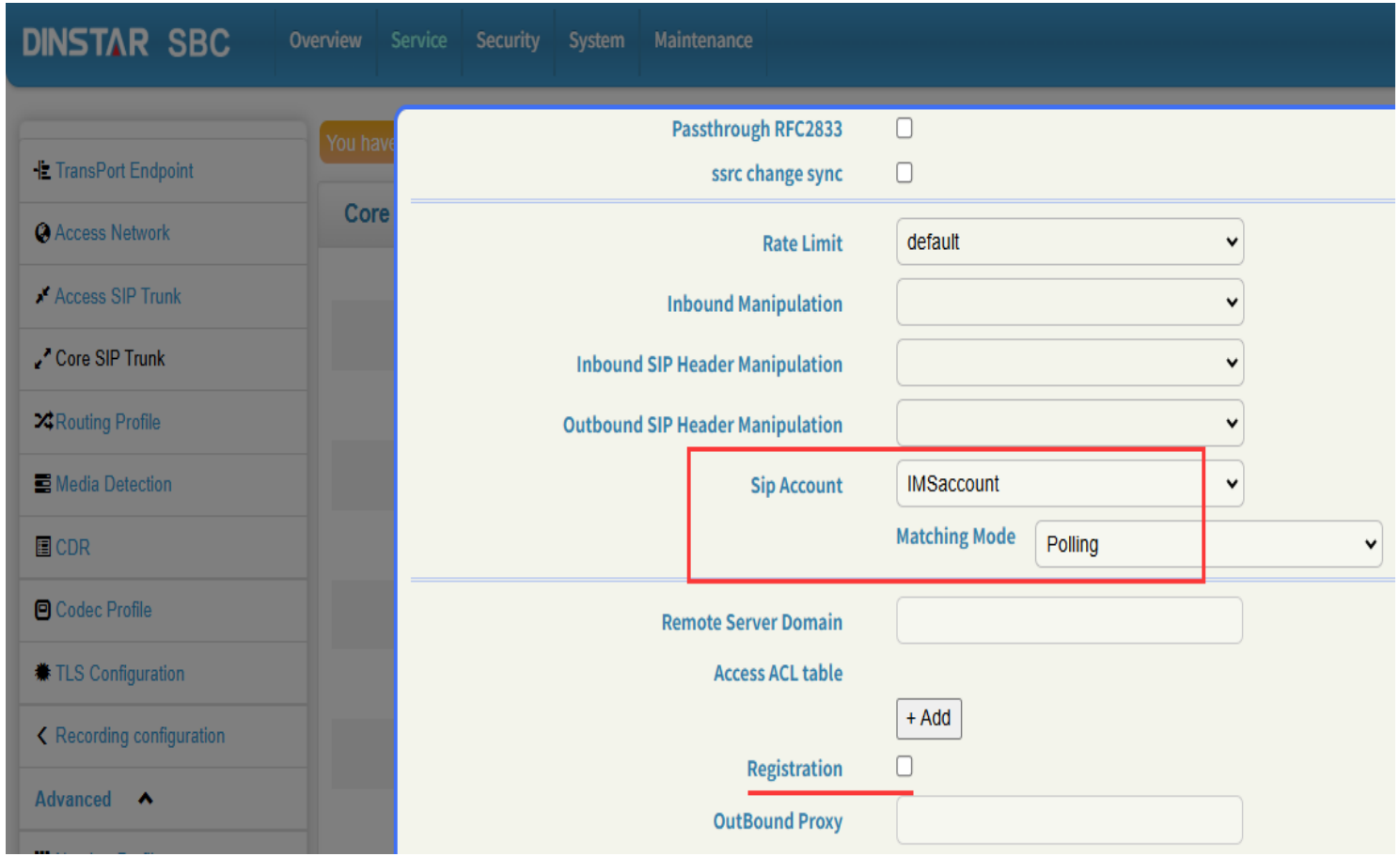
6. Check if the account is correct



SIP Account

Configuration of SIP Account

7.Click on **Service - Core SIP Trunk**, select the new account name under SIP Account



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SIP Header Manipulation

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5.1 Application Scenarios of SIP Header Manipulation

5.2 Configuration of SIP Header Manipulation

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SIP Header Manipulation

Application scenarios of SIP Header Manipulation

When the SBC is used as a device that connects multiple platforms, for example, platform1---SBC---platform2, some Platform2 requires that incoming calls carry a certain SIP header & value, but Platform1 may not carry it. In this case, the SIP header can be modified on the SBC side to satisfy Platform2's special SIP header requirements.

SIP Header Manipulation

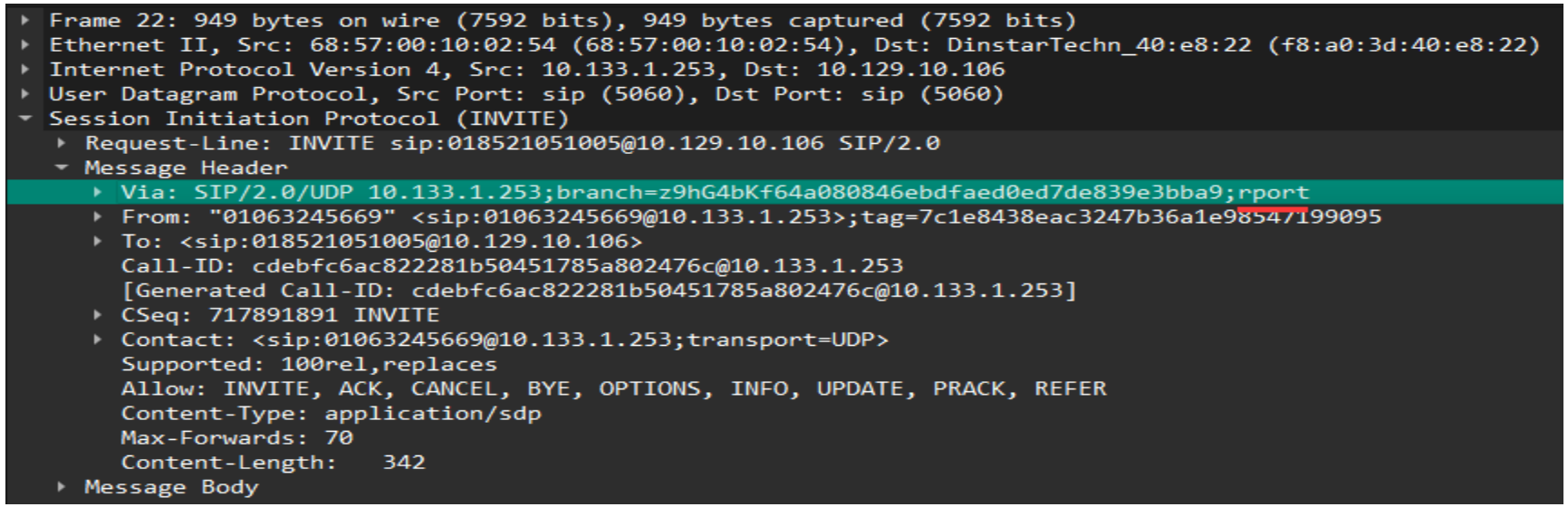
Configuration of SIP Header Manipulation

For example：IPPBX - SBC - IMS, IMS platform requires source messages to have rport values.

There is no rport in the message sent by IPPBX.

The rport String can be added on the SBC side.

The following is an example of an invite with rport.



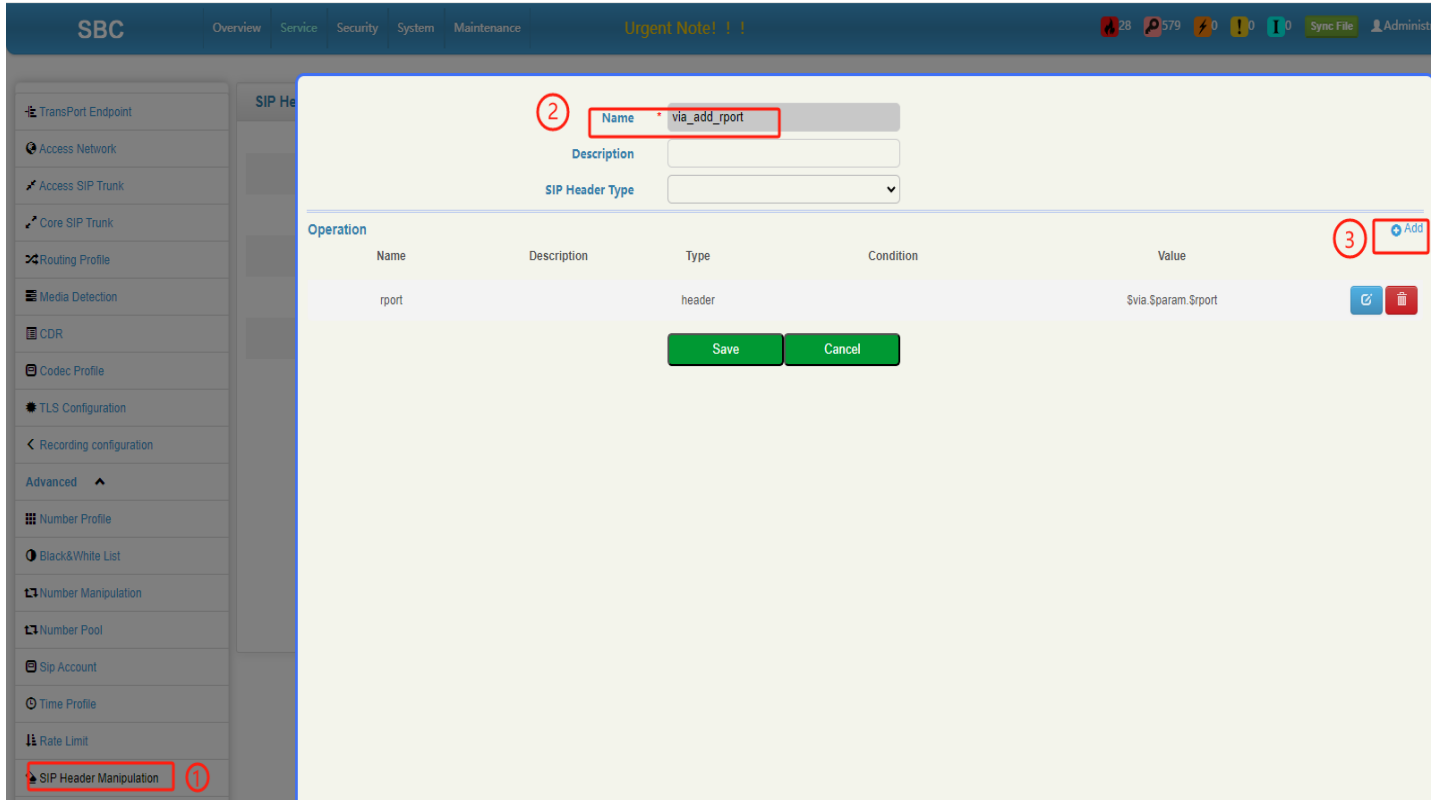
SIP Header Manipulation

Configuration of SIP Header Manipulation

1.Click on **Service-SIP Header Manipulation**

2.Custom name

3.Click add to add operation

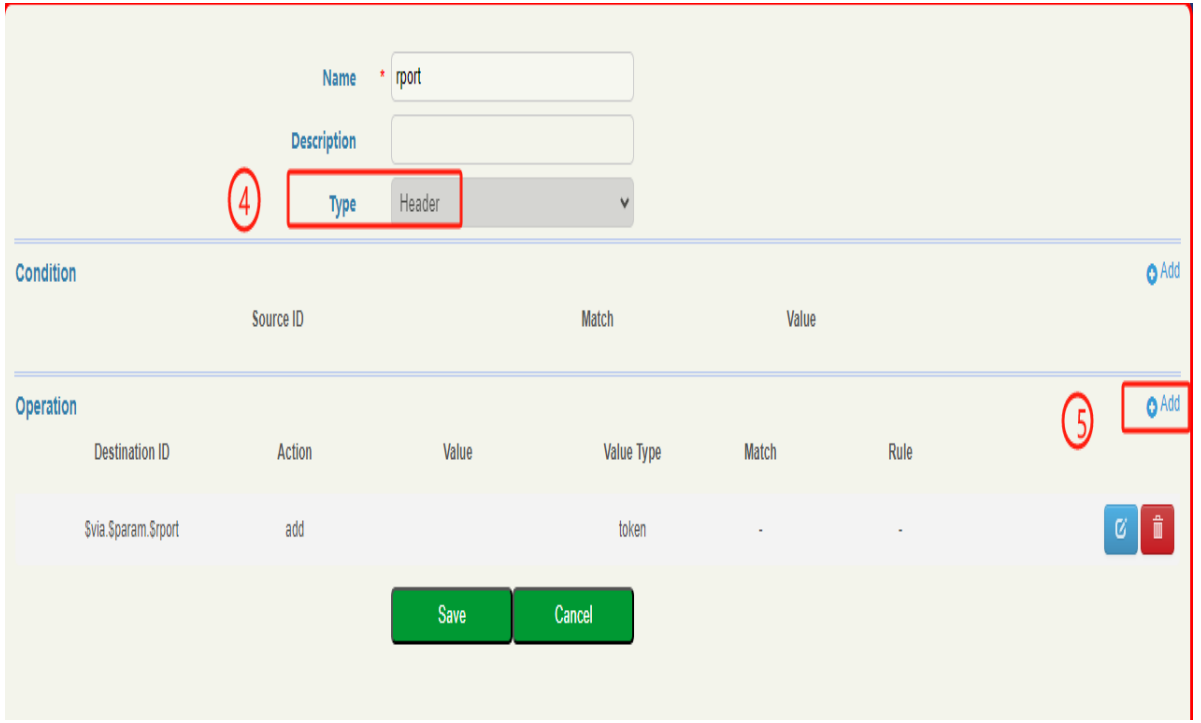


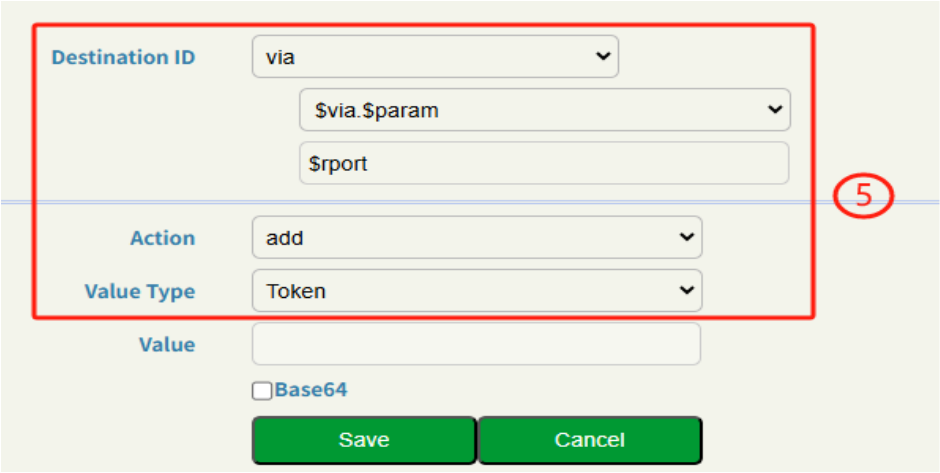
SIP Header Manipulation

Configuration of SIP Header Manipulation

4.Type selection header

5.Click add to add operation, Configure according to the image

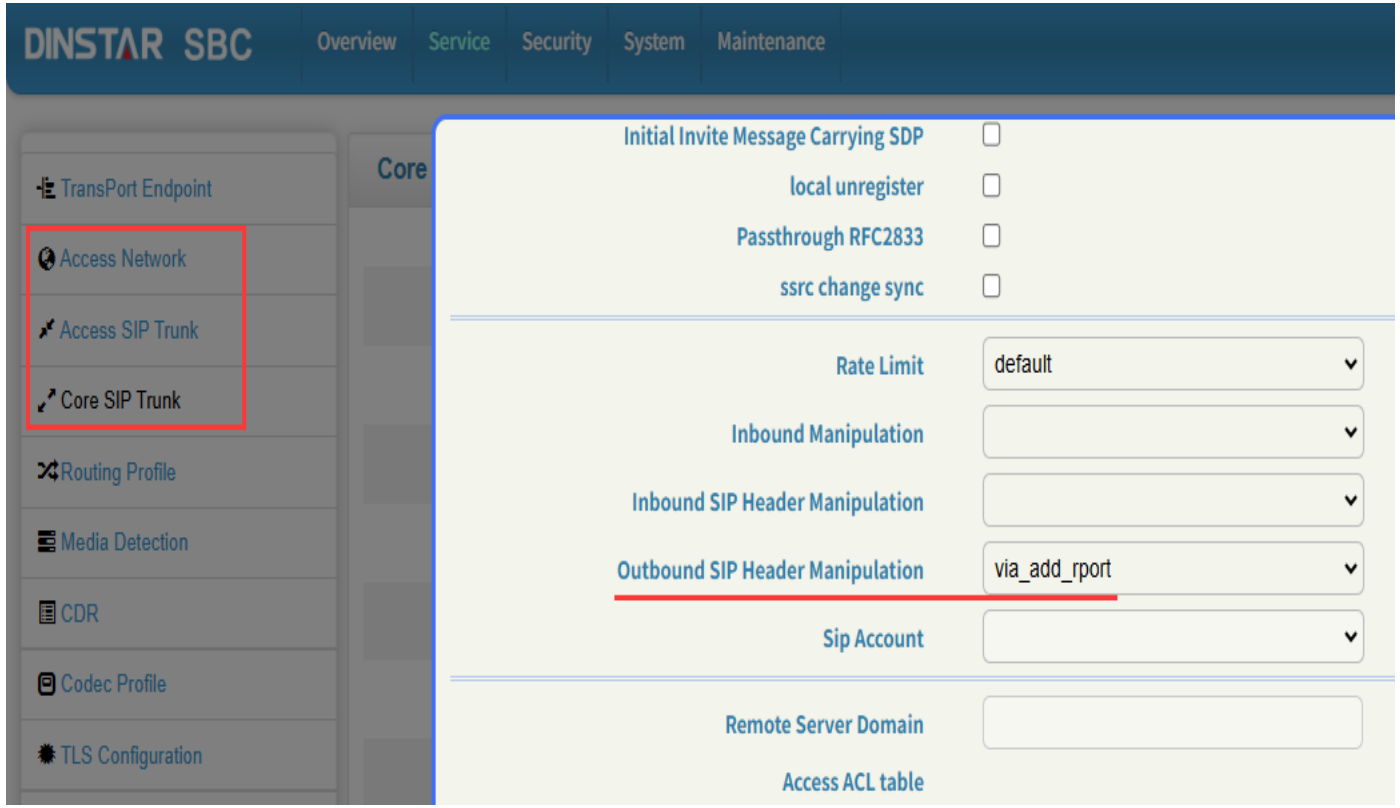




SIP Header Manipulation

Configuration of SIP Header Manipulation

6.Check **service-core SIP Trunk** , outbound SIP Header Manipulation Select the corresponding header Manipulation



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SIP Header Passthrough

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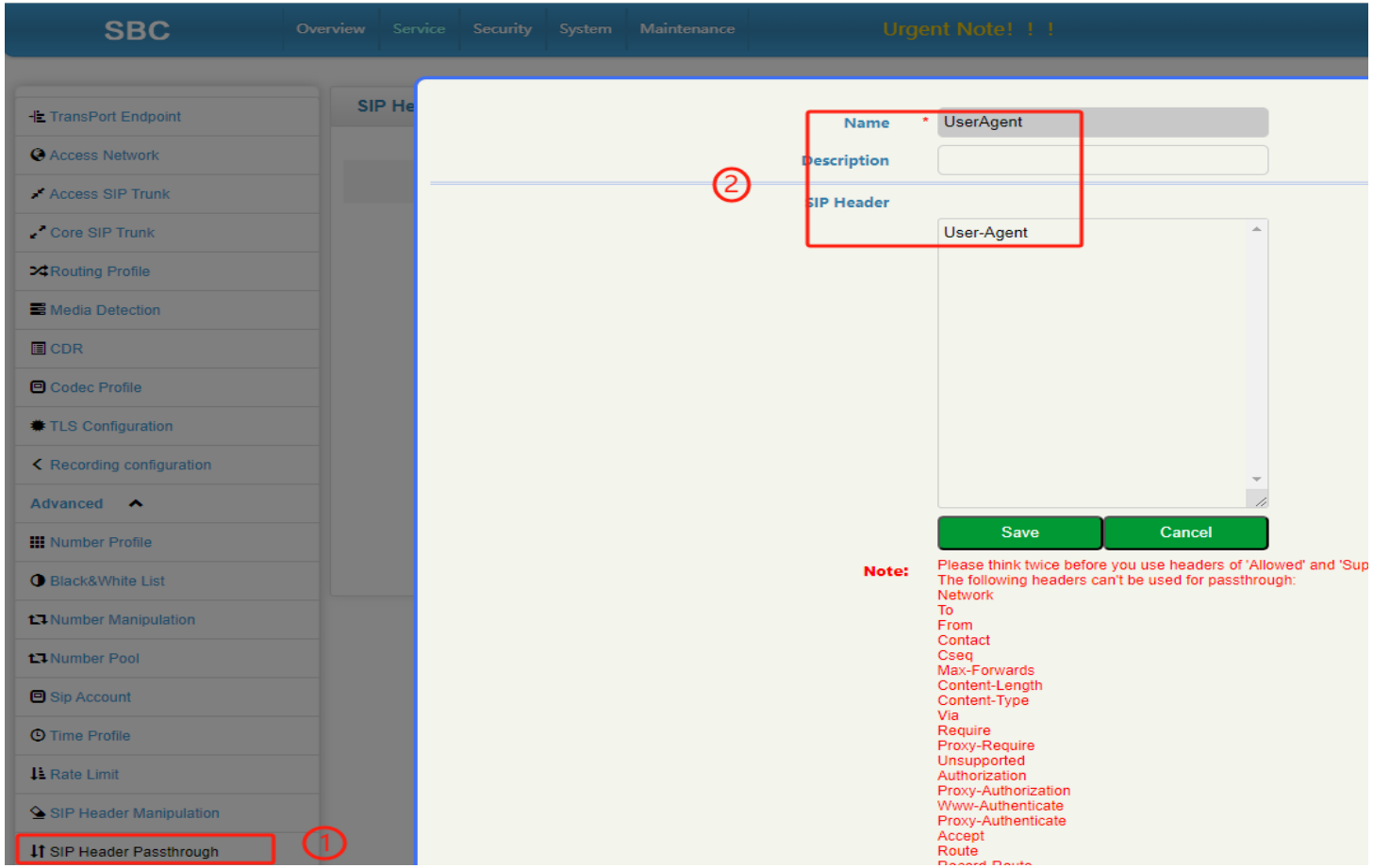
SIP Header Passthrough

Configuration of SIP Header Passthrough

1.Click on **Service-SIP Header Passthrough**

2.Custom name and Fill in the header to be passthrough

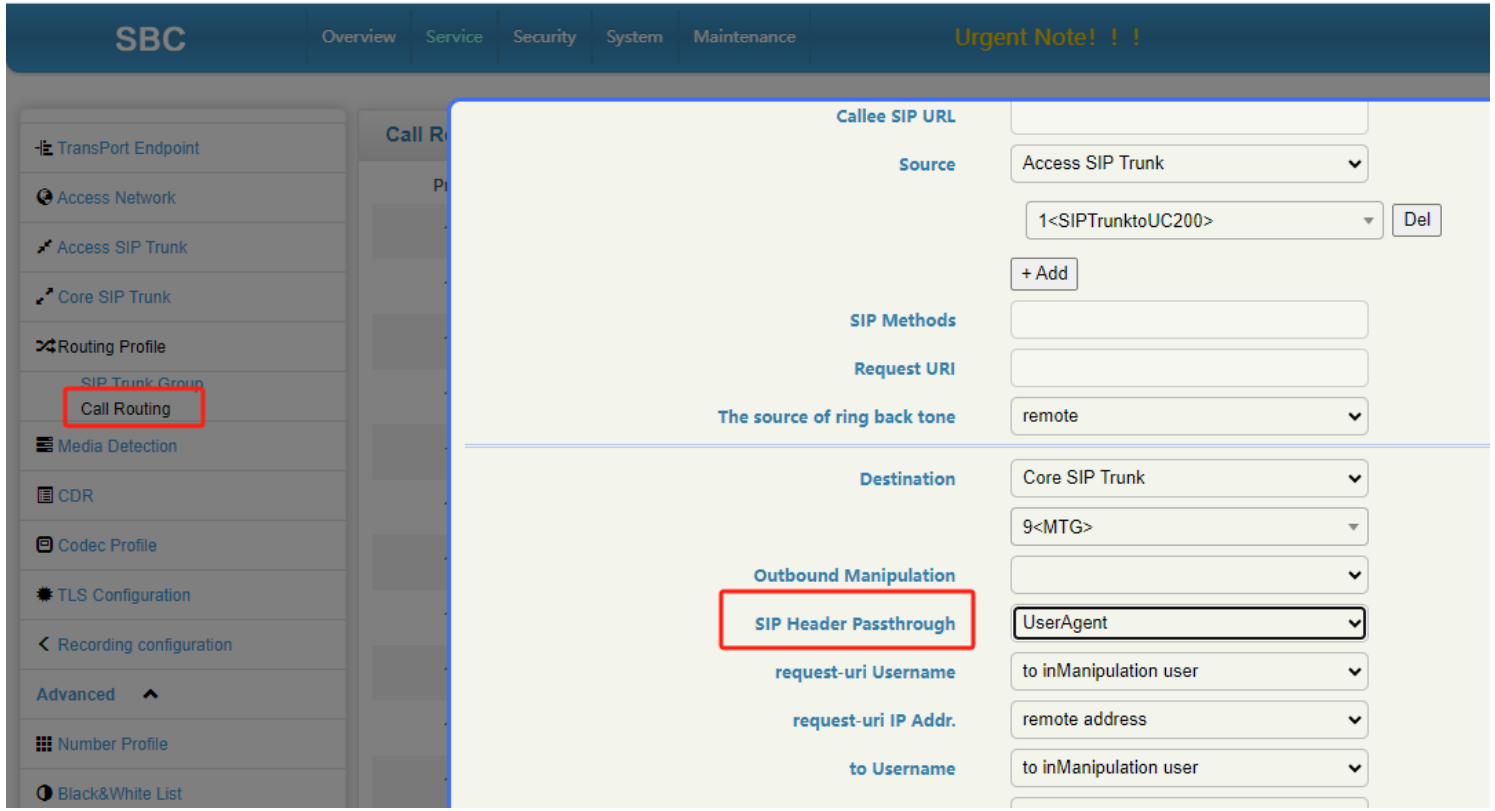


SIP Header Passthrough

Configuration of SIP Header Passthrough

3.Click on **Service-Routing Profile-Call Routing**

4.Select the corresponding name for SIP header Passthrough



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Trunk Group

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Trunk Group

Configuration of Trunk Group

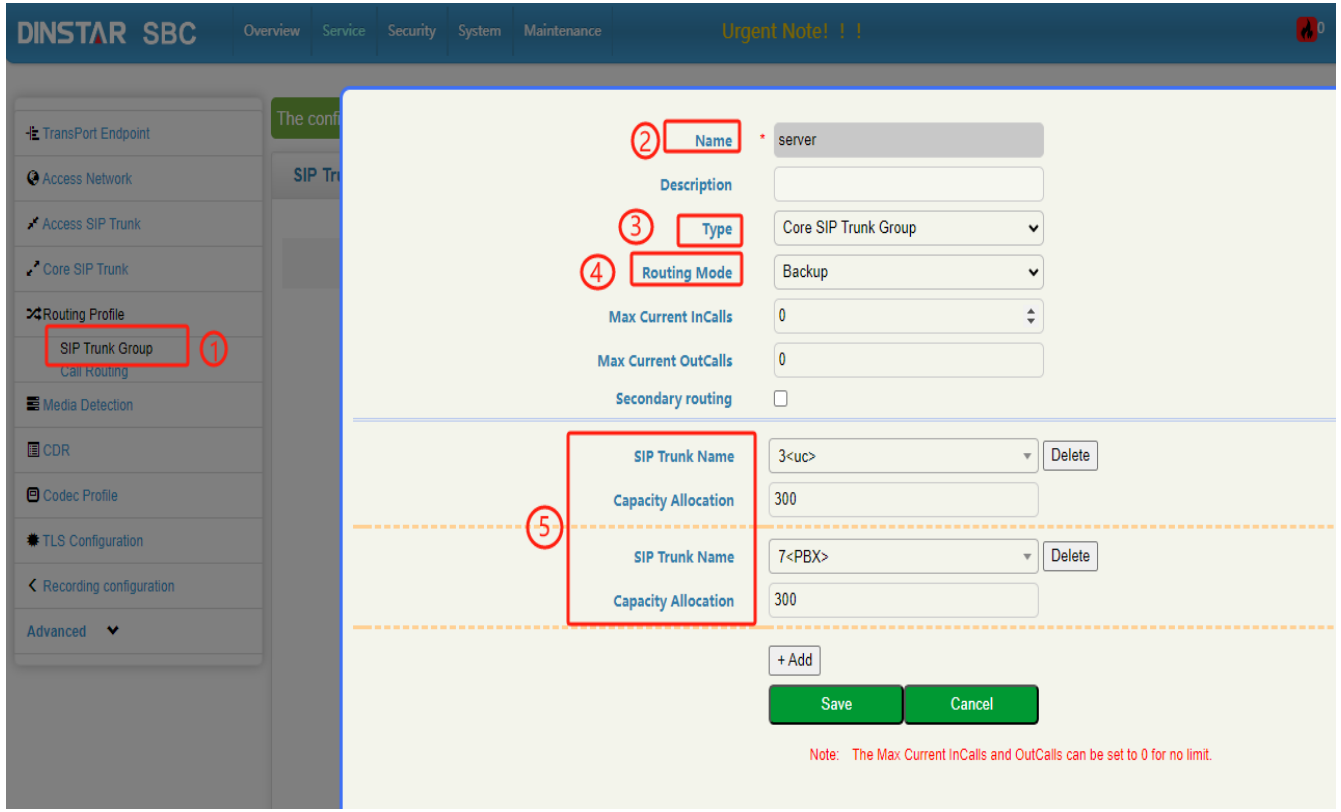
1. Click on **Service-Routing Profile-SIP Trunk Group**

2.Custom name

3.Select trunk type

4.Select routing mode

5.Select SIP trunk name and set capacity allocation



Trunk Group

Configuration of Trunk Group

- **Routing Mode:**

Backup mode--If the Capacity Allocation value same, all traffic to primary one, unless the trunk disconnect. If the Capacity Allocation value different, all traffic to primary one till it full

Load Balance mode--The SBC will base weight to dispatch call to different trunk, like Trunk A received 70%, other one 30%

Polling-- Polling and sending to various trunks during outgoing calls

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SIP Security

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SIP Security

Configuration of SIP Security

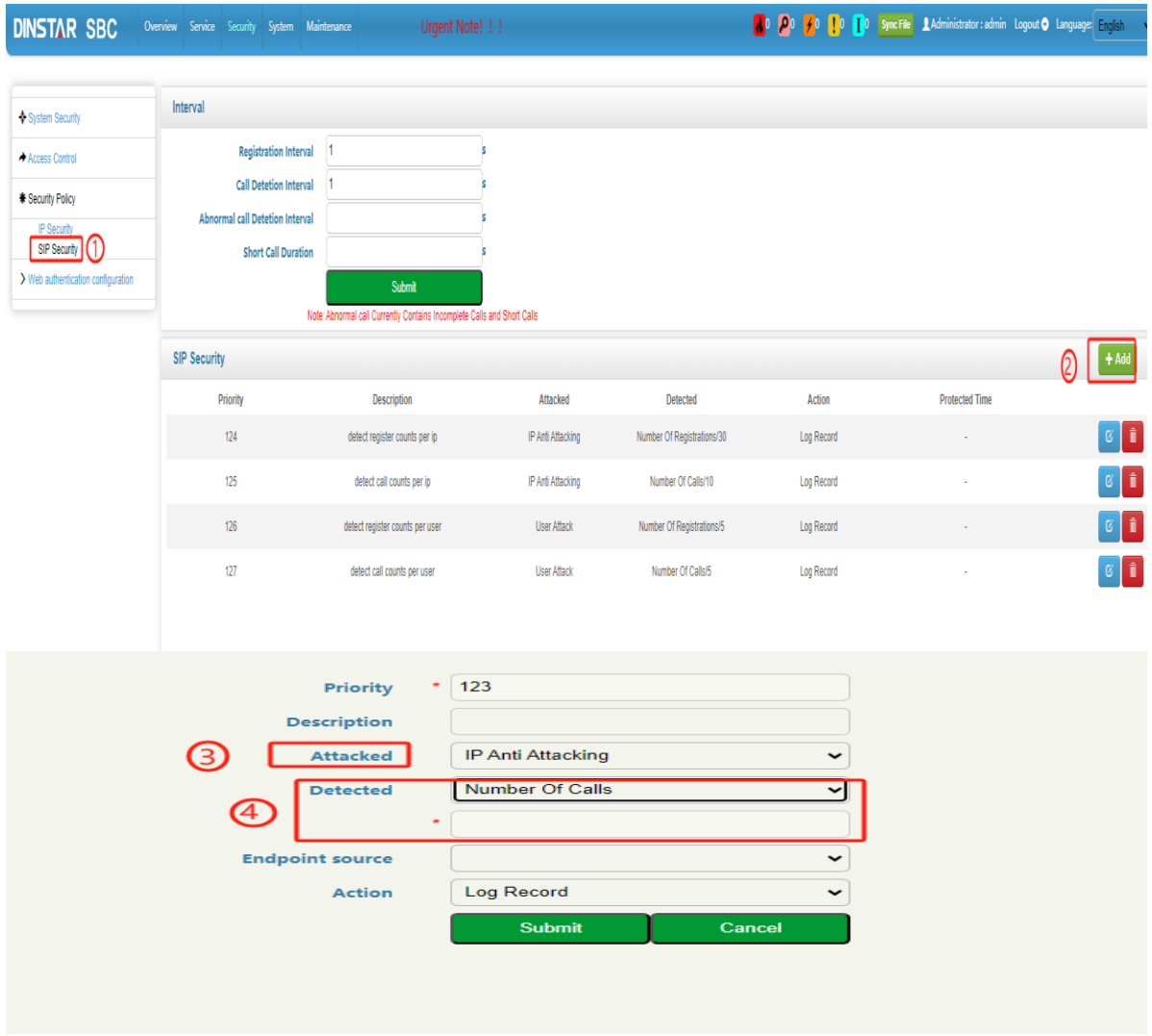
SIP Security for protect the SBC and block the SIP attack.

1.Click on **Security - Security Policy-SIP Security**

2.Click on add or modify

3.Select attacked : IP Anti Attacking/user attack

4.Select detected and Set value



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Other

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Other

Black/While List

- **Application scenarios**

The Black/White list use for Access Trunk and Access Network level.

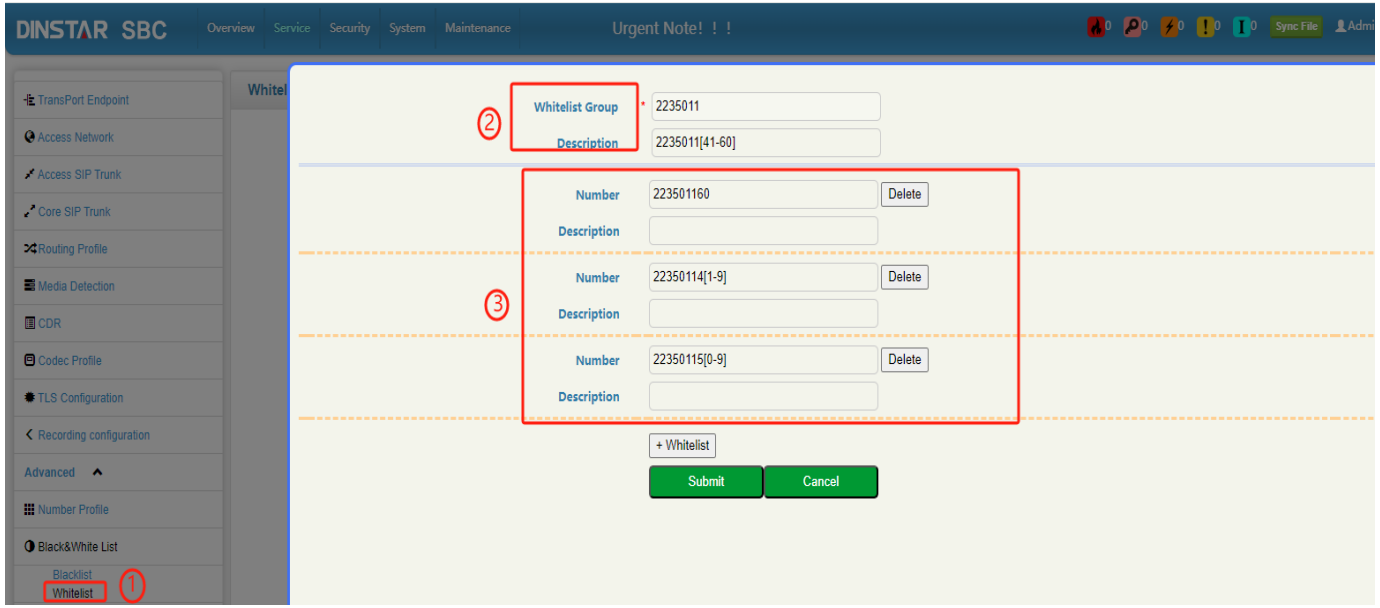
Limit the external register/call to SBC, decrease the heavy of SBC and IPPBX

- **configuration**

1.Click on **Service-Black/While List**

2.Custom name and description

3.Configuration number



Other

Rate Limit

- **Configuration**

1.Click on **Service-Rate Limit**

2.Click on add or modify

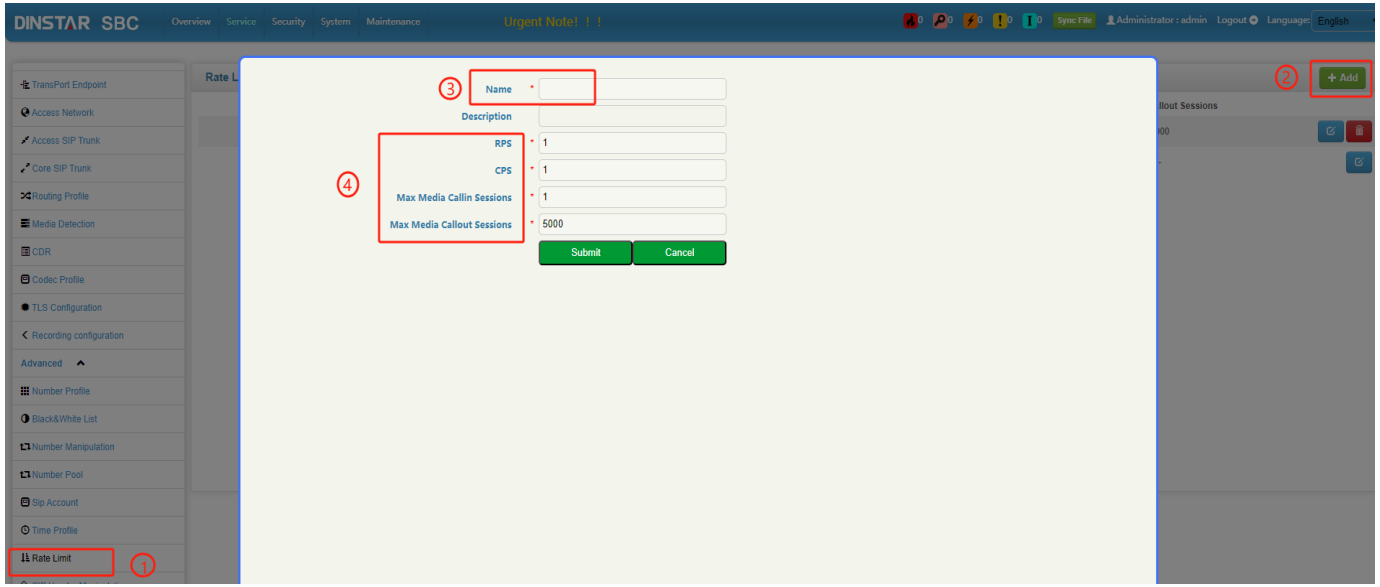
3.Custom name and description

4.RPS: Max SIP Register request per seconds from remote side to this Trunk.

CPS: Max SIP Call request per seconds from remote side to to this Trunk.

Max Media Sessions: Max concurrent call in this trunk.

Note: the value should not overtop the license of SBC



Other

Codec Profile

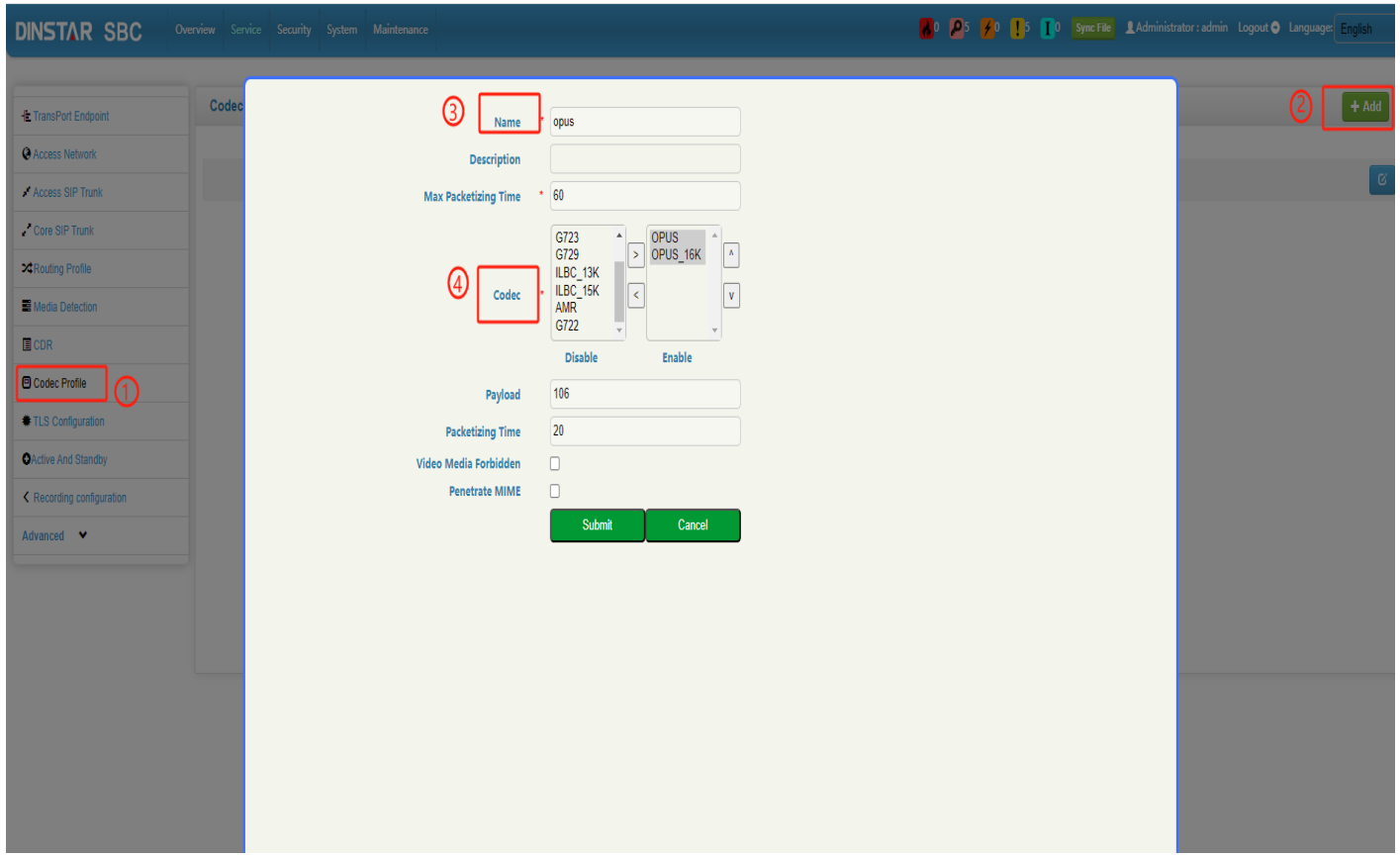
- **Configuration**

1.Click on **Service-Codec Profile**

2.Click on add

3.Custom name

4.Select codec

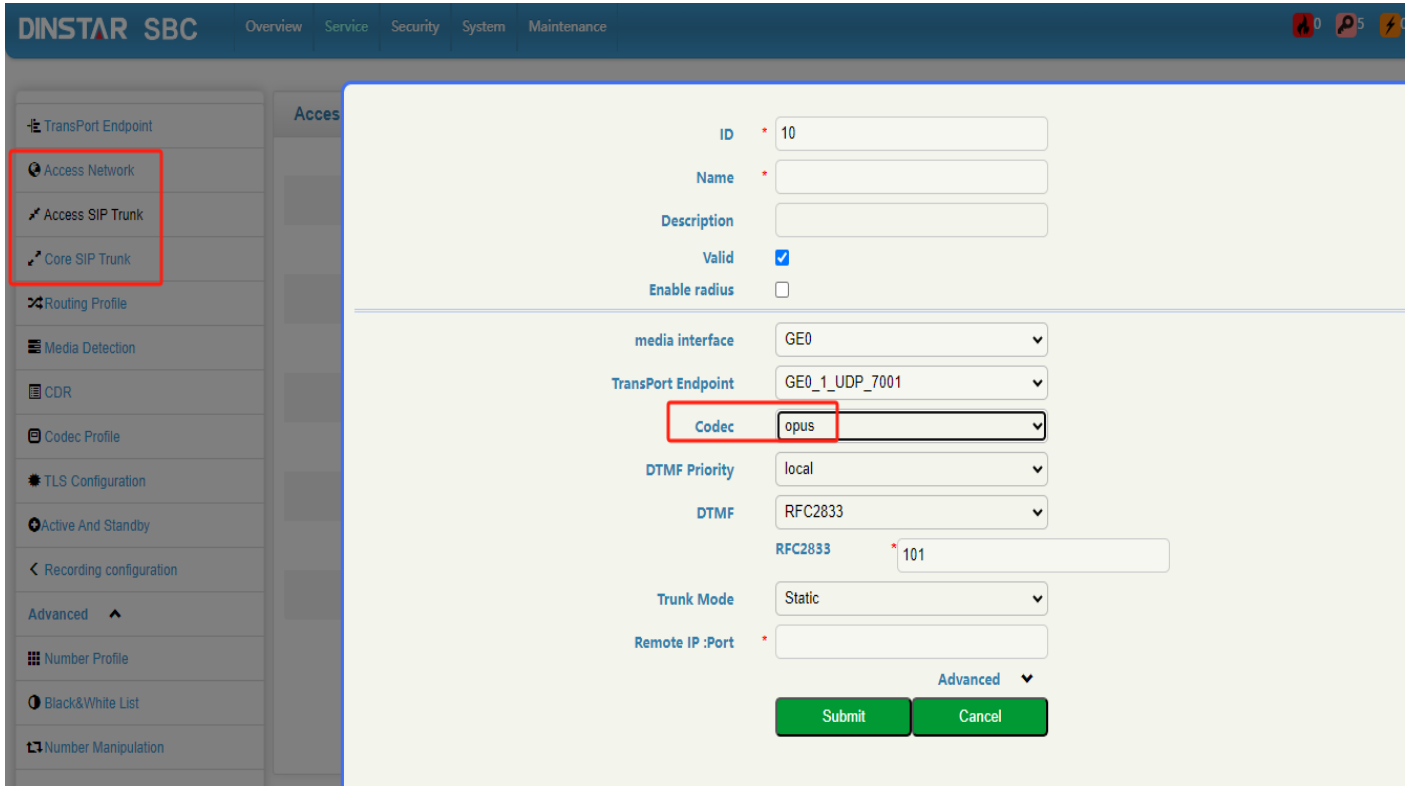


Other

Codec Profile

- **Configuration**

5. Click on the **Service – SIP Trunk/ Access Network** according to the requirements, and select the profile name for the codec

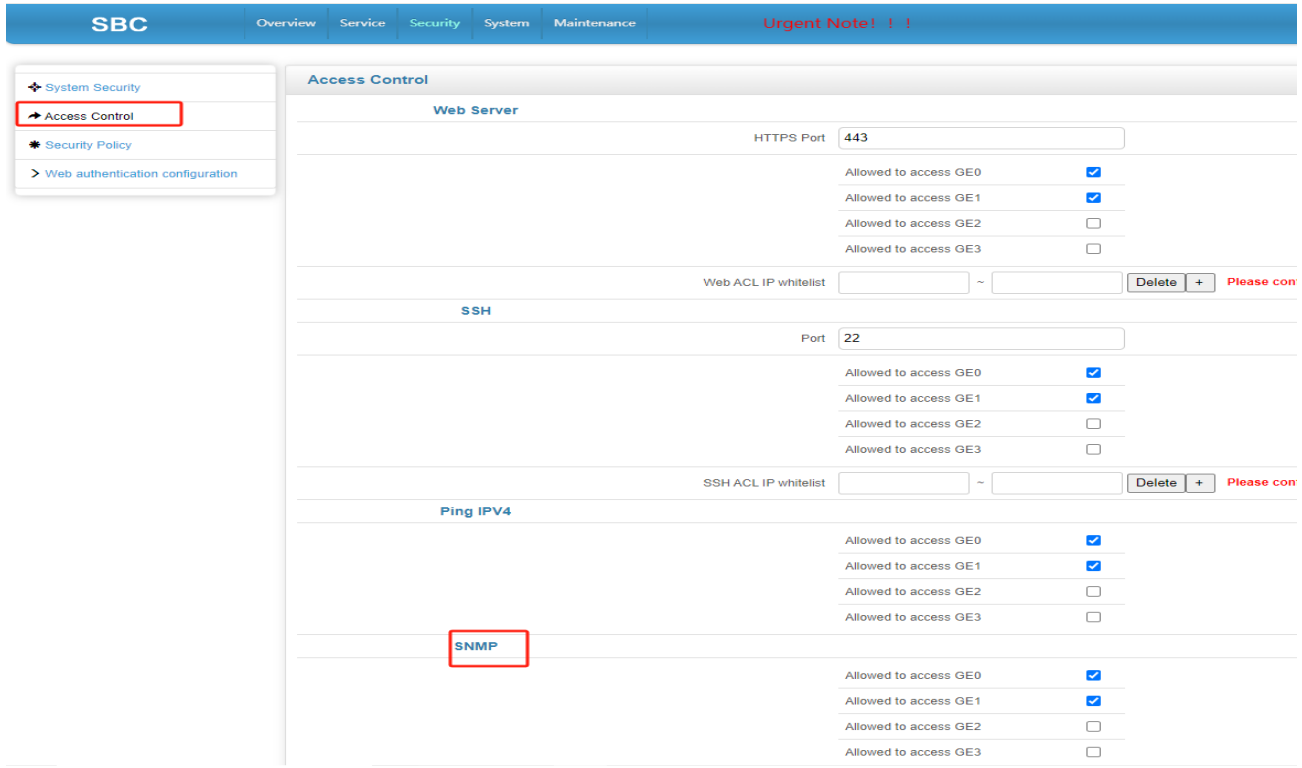


Other

SNMP

- SBC Configuration

1. SNMP is enabled by default for the management port, and SNMP access permissions need to be enabled for other network ports in the **Security-Access Control**

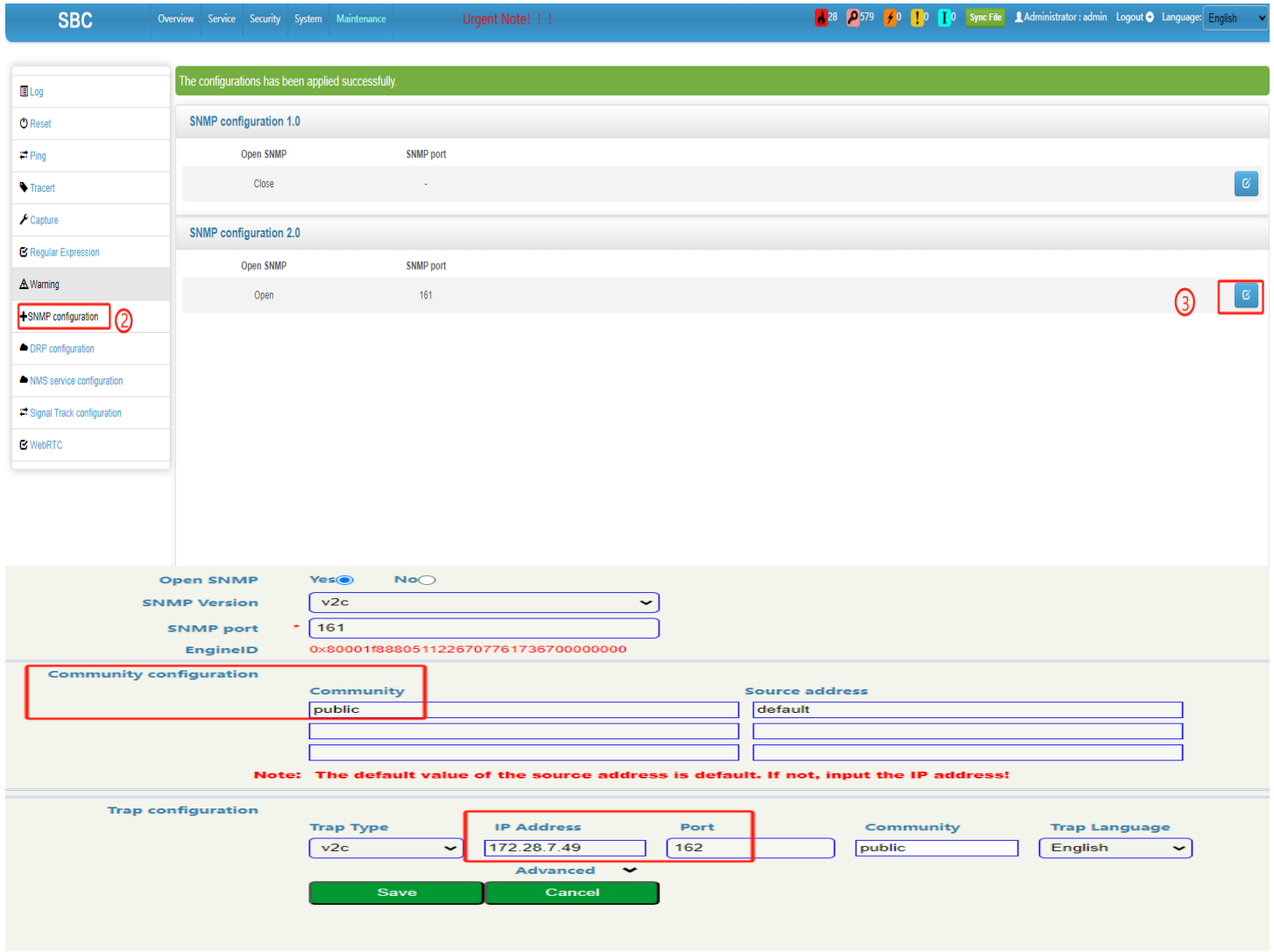


Other

SNMP

- SBC Configuration

2. Click on **Maintenance- SNMP Configuration**
3. Select SNMP version and click Edit
4. Configure SNMP port and community, and fill in the IP address for trap configuration

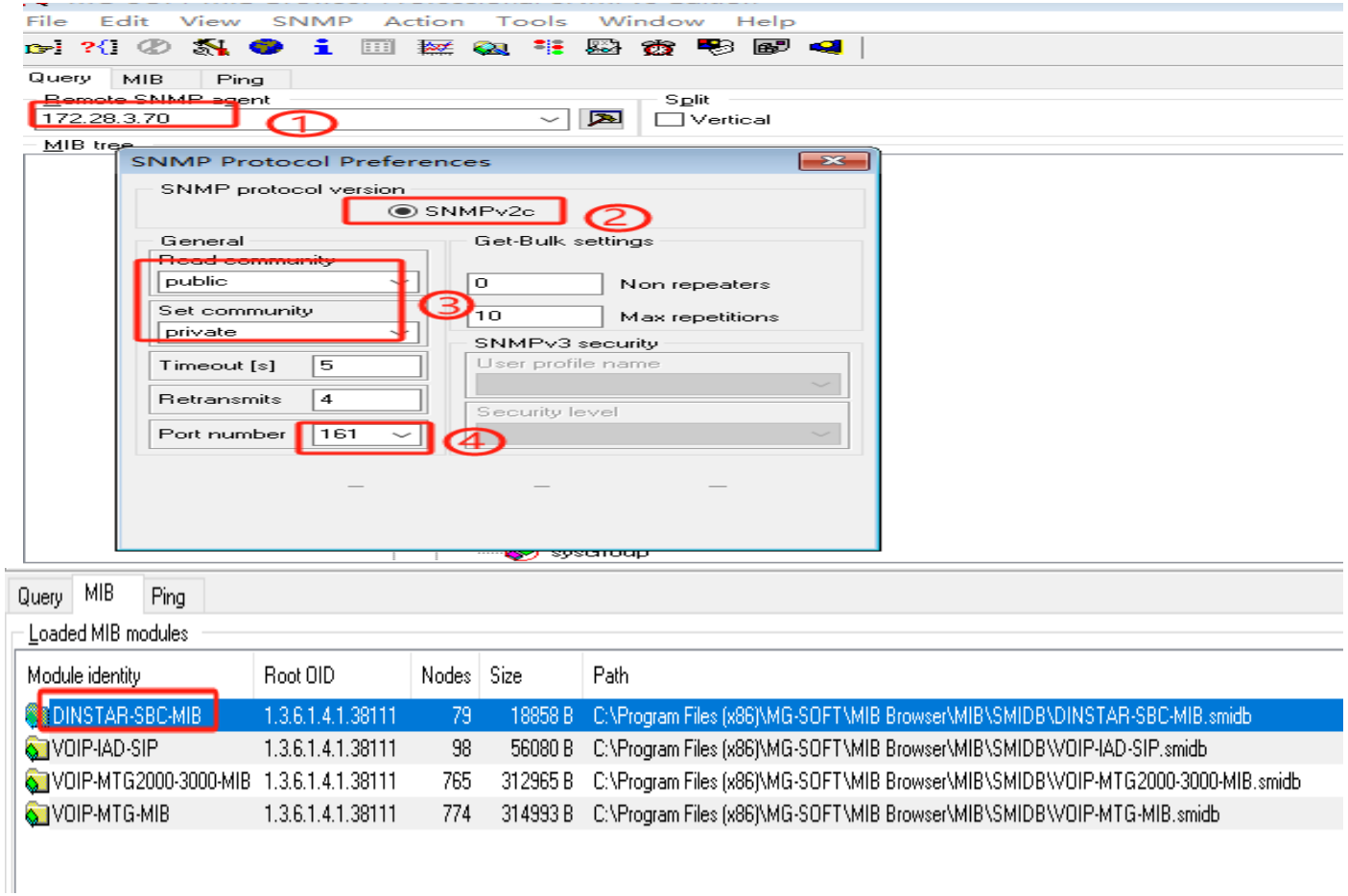


Other

SNMP

- SNMP Server Configuration

1. Fill in the SBC network port IP
2. Choose SNMP version, keep the server and SBC consistent
3. Configure the community
4. Configure SBC listening port
5. Import the MIB file of SBC



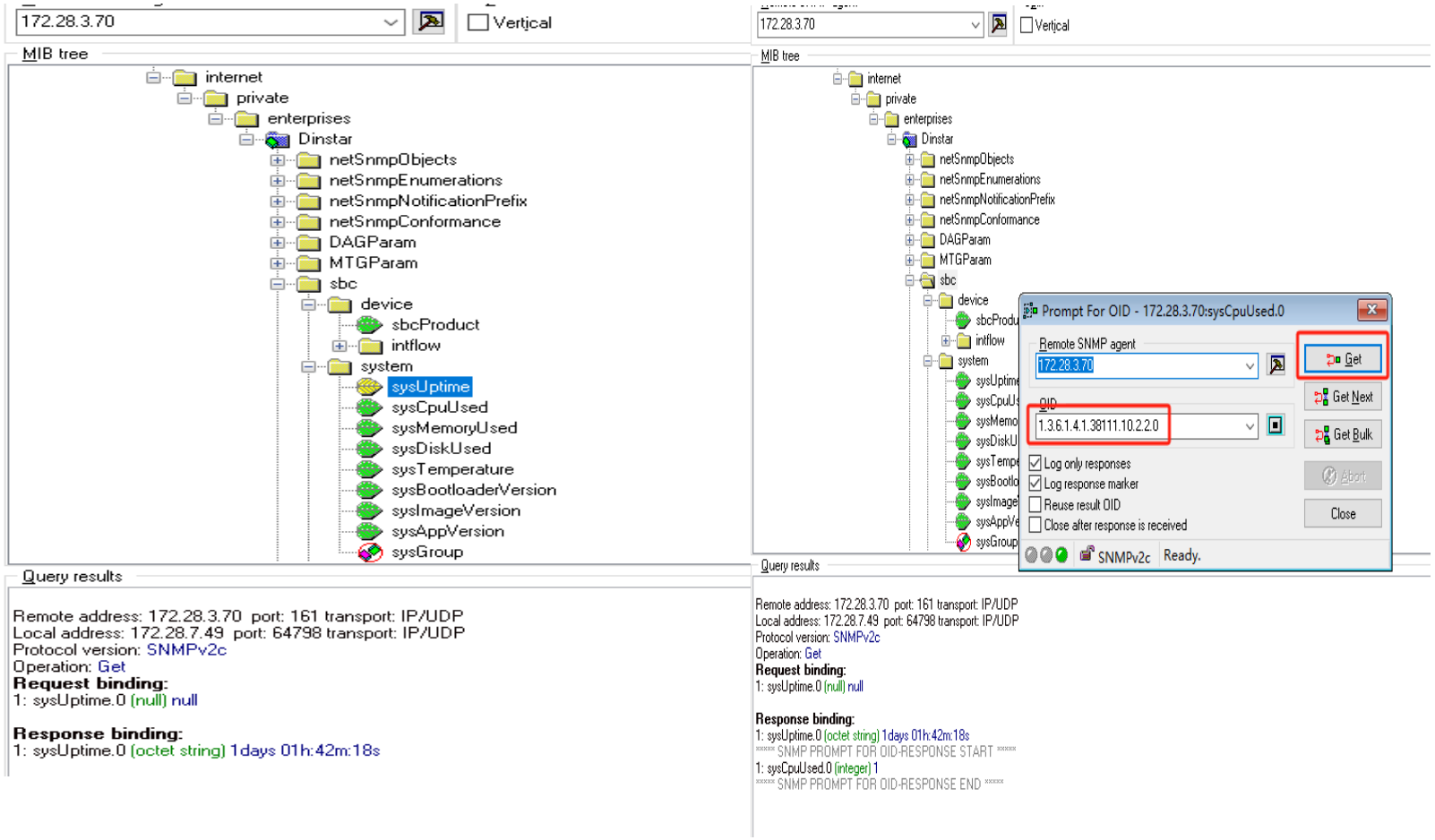
Other

SNMP

- SNMP Server Retrieves SBC Information

Method 1: Find the information to be obtained on the MIB tree, right-click GET, and results will display the obtained information

Method 2: Knowing the OID of the corresponding information, one can directly query it



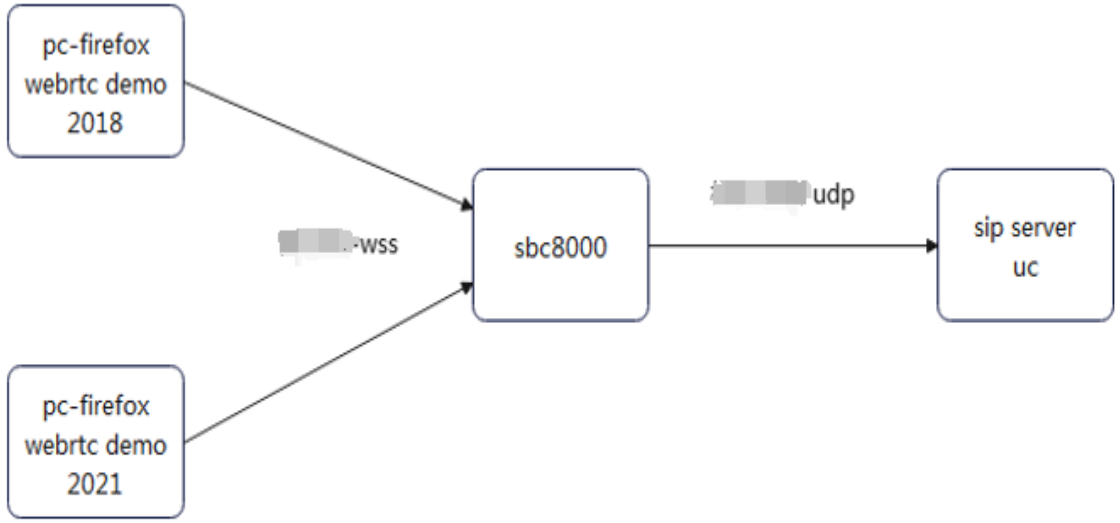
Other

WEBRTC

•SBC serves as the core network boundary proxy server (B2BUA), and users use WSS clients to initiate registration by listening to SBC's access network address

•After receiving the registration message, SBC transfers it to the server of the core SIP trunk

•The registration account and password are provided by the core network server, and SBC is a back-to-back proxy registration



Other

WEBRTC

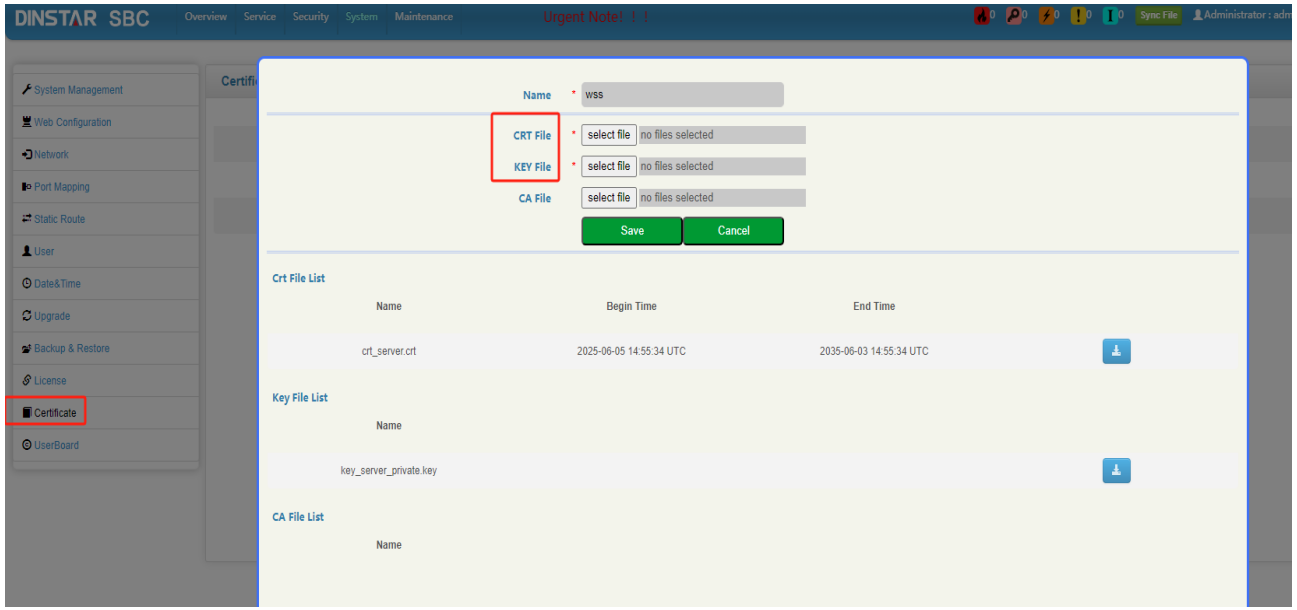
•SBC configuration

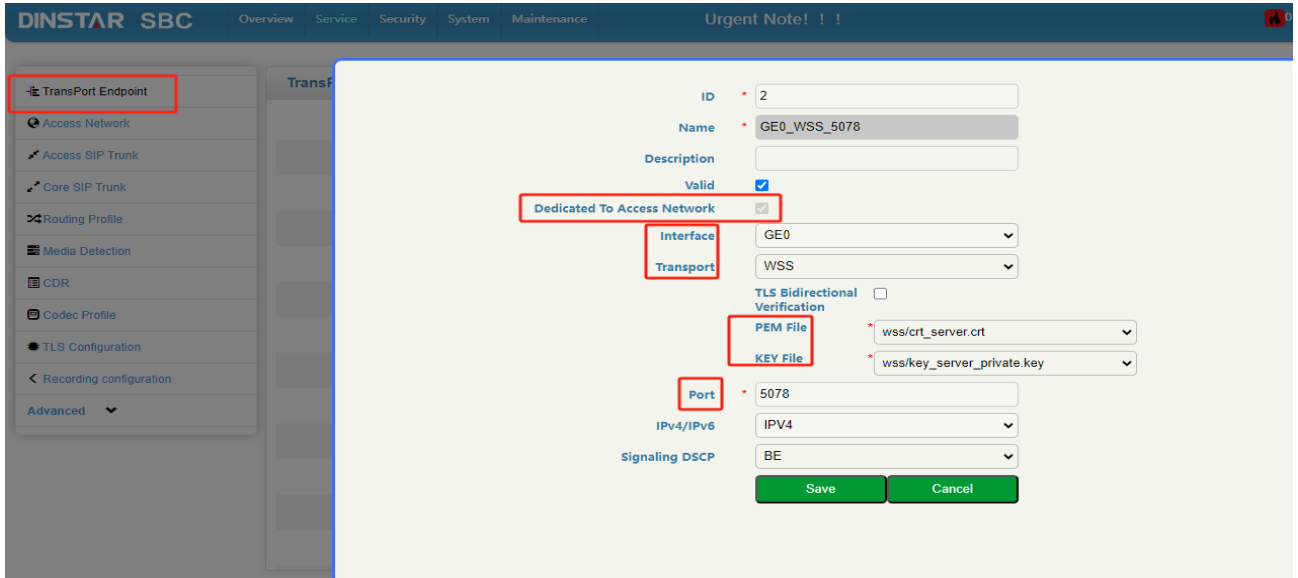
1.Upload WSS certificate: Click on **System** - **Certificate**, upload CRT file and KEY file

2.Configure transport endpoint: Click on **Service** - **Transport Endpoint**, select interface, transport, and corresponding certificate

3.Configure the transport endpoint connected to IPPBX using the same method

ID	Name	Description	Interface	Port	IPv4/IPv6	Transport	Dedicated To Access Network
1	GE0_UDP_5065		GE0	5065	ip4	udp	false
2	GE0_WSS_5078		GE0	5078	ip4	wss	true





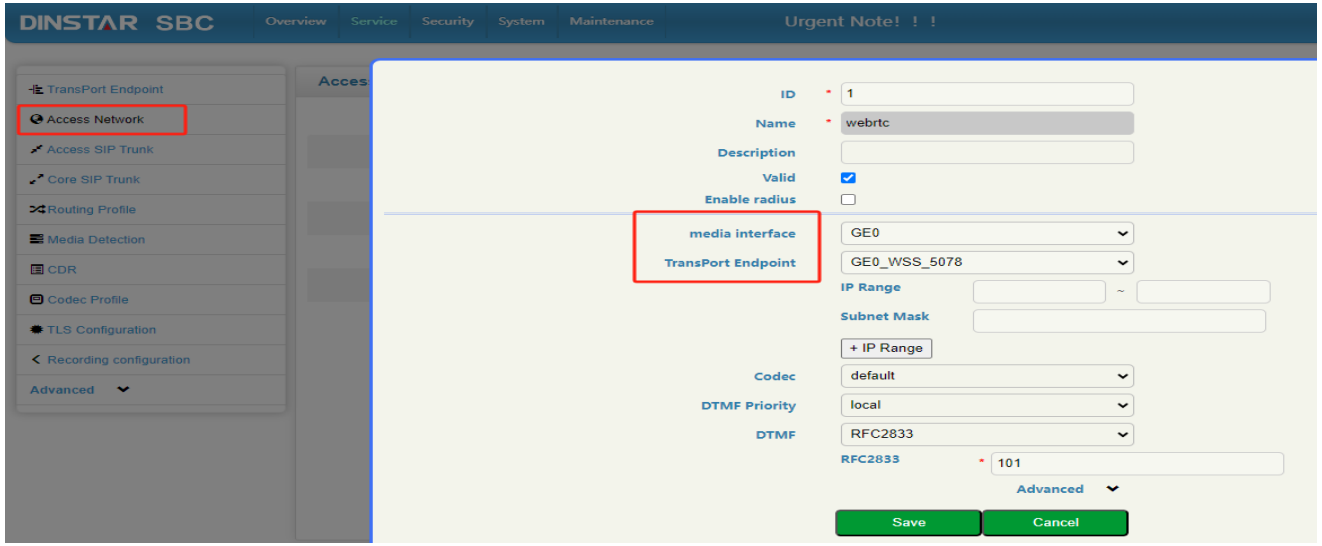
Other

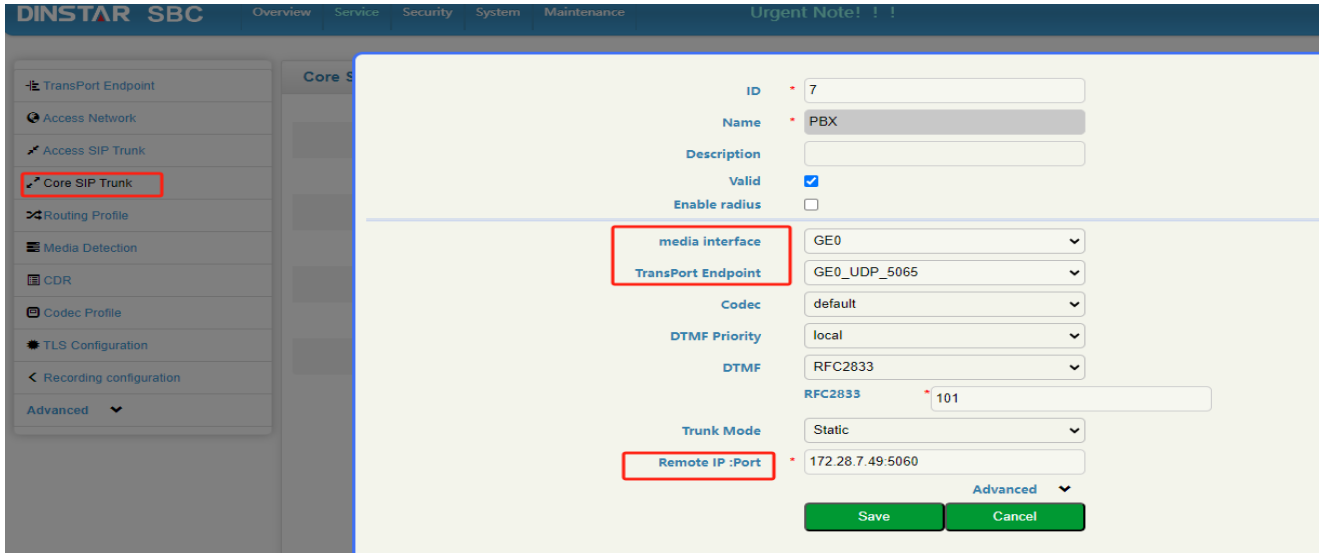
WEBRTC

- SBC configuration

4.Access Network: Click on **Service** - **Access Network**, select the media interface and transport endpoint

5.Core SIP Trunk: Click on Service - Core SIP Trunk, select the media interface and transport endpoint, and fill in the IP and port of the IPPBX



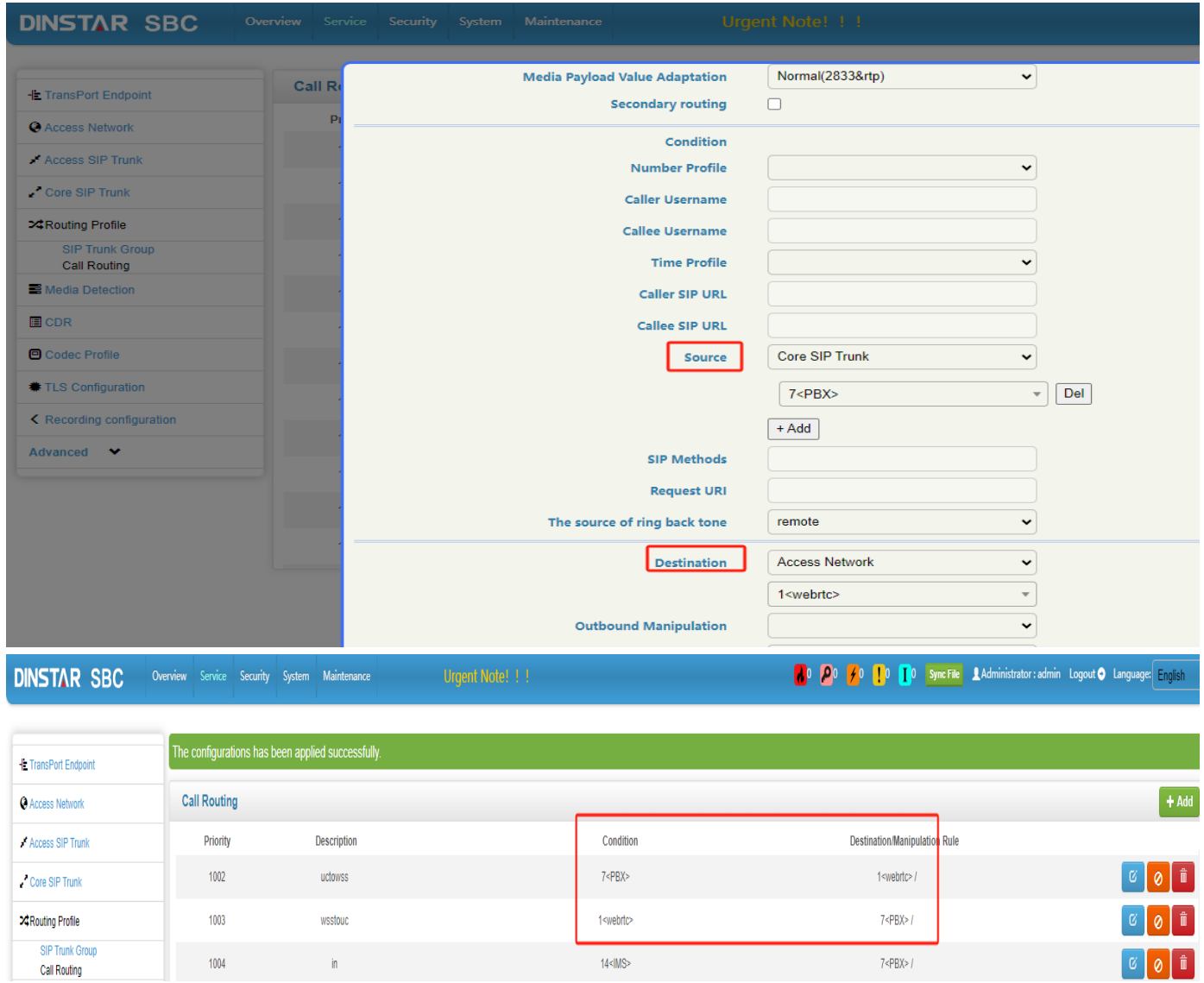


Other

WEBRTC

- SBC configuration

6.Click on **Service - Routing Profile -call Routing**, configure bidirectional routing between core SIP TRUNK and access network



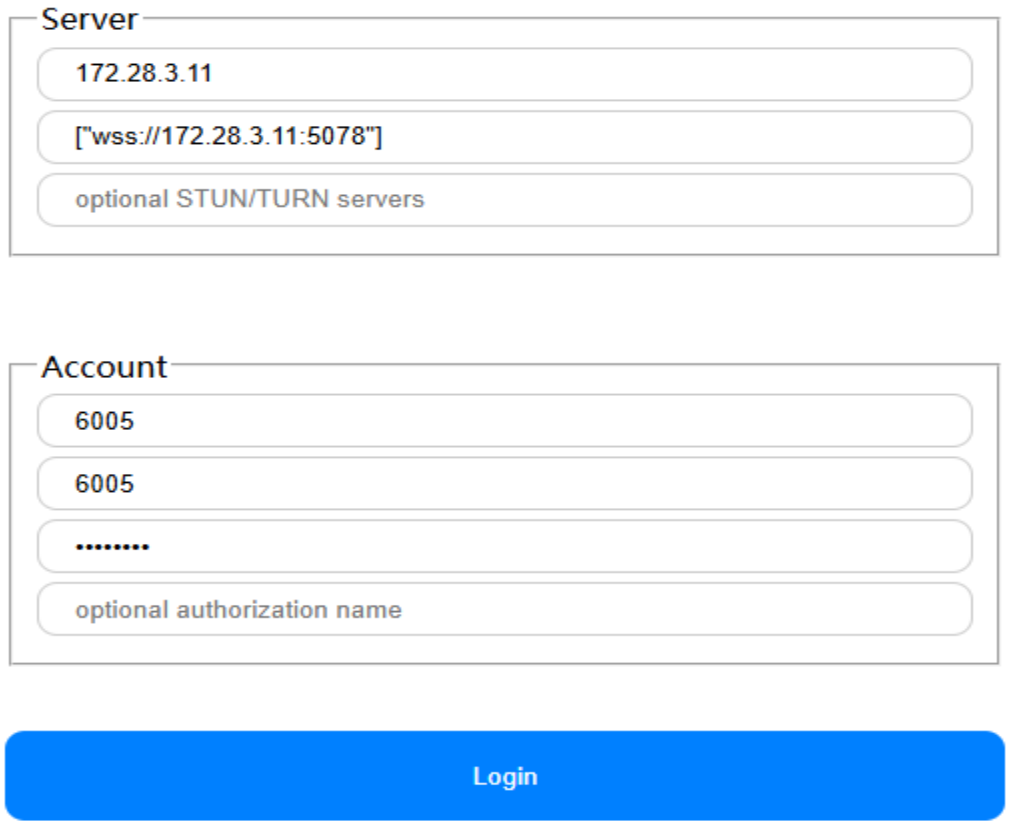
Other

WEBRTC

•WSS Terminal Registration

1.Fill in the network port IP and port selected for the SBC access network transport endpoint

2.Fill in the registered account and password assigned by the core network server



Other

WEBRTC

- WSS Terminal Registration

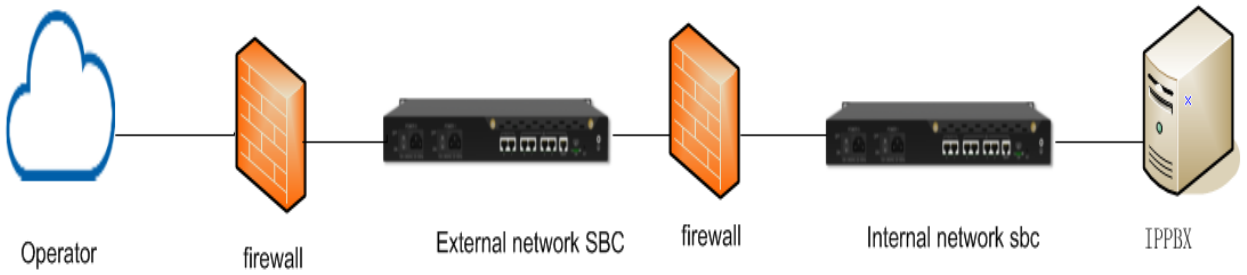
3.There will be corresponding prompts after successful registration

Other

NAT

•There are firewalls between the internal network SBC and the external network SBC, as well as between the external network SBC and the operator equipment, to provide security protection

•The IP address of the external SBC is not in the same network segment as the operator's device, and the external SBC needs to configure NAT

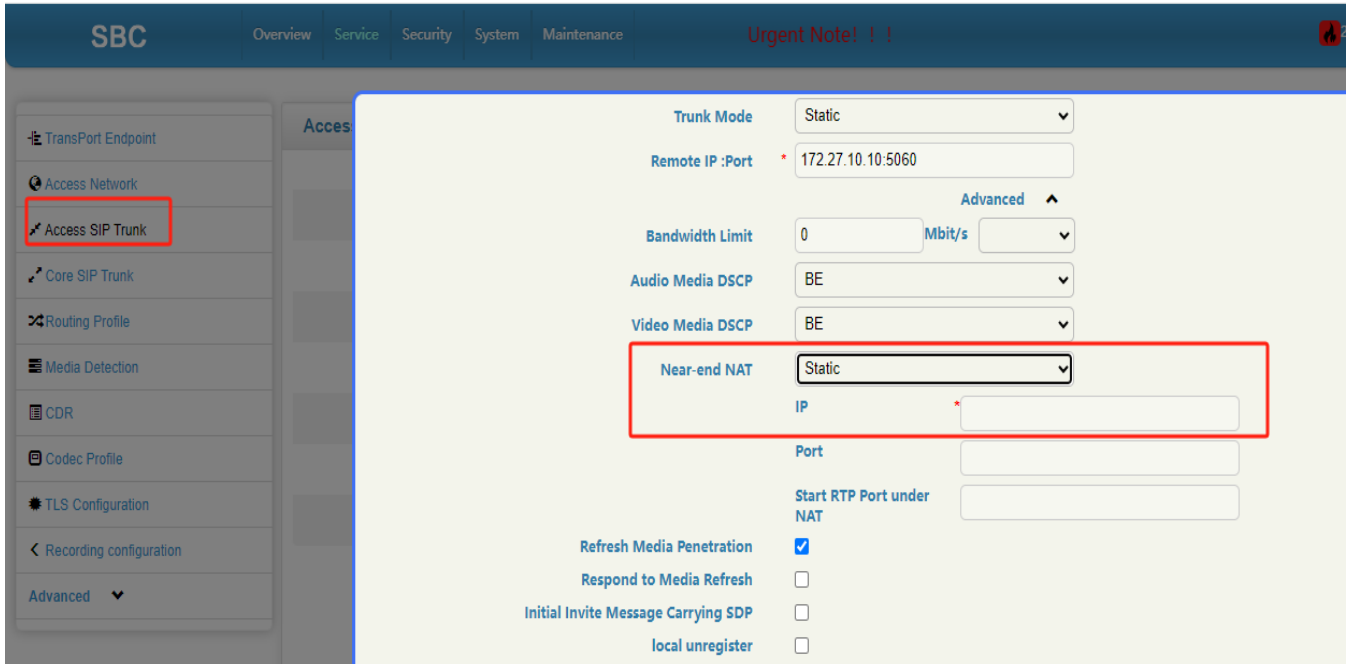


Other

NAT

NAT configuration

1. Click on **Service - Access SIP Trunk**, find the access SIP trunk corresponding to the operator
2. Enable near end NAT and fill in the IP address required by the operator



Summary

- The course describes application scenarios for some common advanced features of SBC and illustrates basic configuration with simple examples.

Abbreviation

- SIP：Session Initiation Protocol
- SBC: Session Border Controller

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THANKS

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