DO Roaming Implementation

MOP for DO Roaming Implementation for Pan India BSNL network

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Content

1 Introduction

AAA (Authentication, Accounting, and Authorization Server) is also called Radius server, which performs the authentication of subscriber's script file, completes the authorization of data service, and realizes the accounting function. AAA server is also divided into service AAA, intermediate AAA (agent AAA) and home AAA, as shown below:
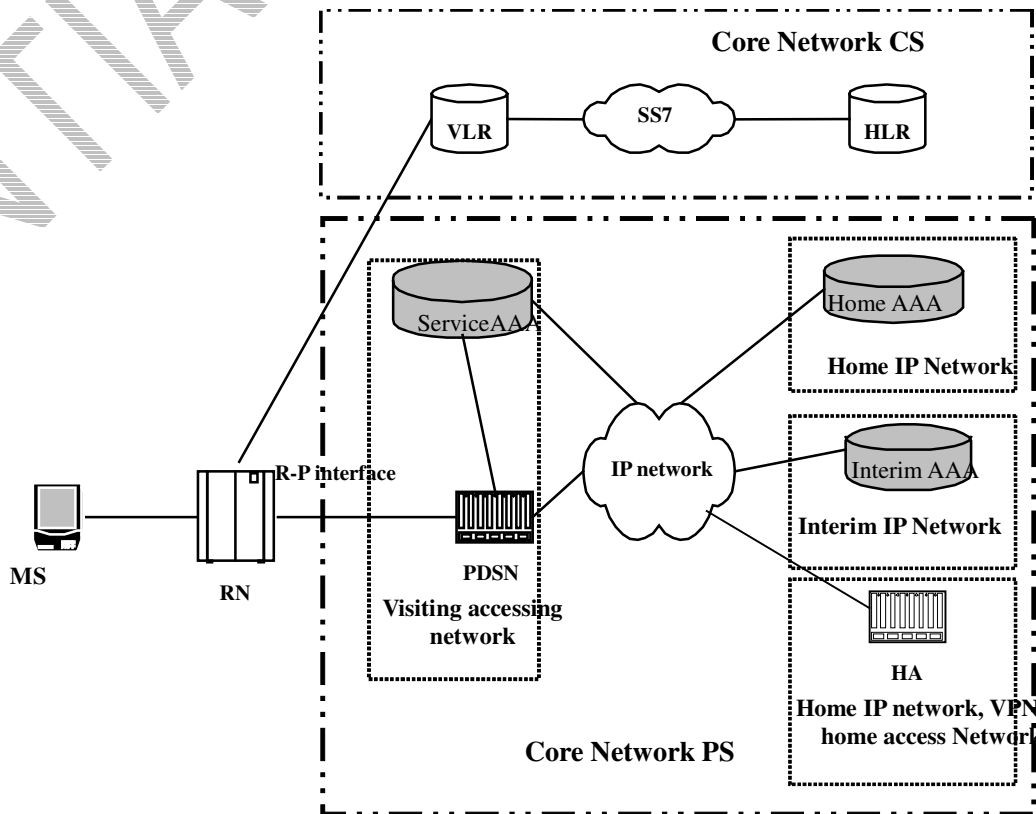

Fig.1 PDSS system diagram

The service AAA is in the service network (also called the visiting access network), connected with PDSN in the service network; home AAA is in the home network, connected with HA in the home network in the case of mobile IP. If MS does not roam, the service AAA and home AAA are combined in one. The interim AAA is in the interim network (this is optional, and in actual situation there might be no interim network); it has the security association with service AAA and home AAA, used to transmit AAA messages securely between service AAA and home AAA. Sometimes, there can be more than one interim AAA between the service AAA and home AAA.

2 Configuration

The roaming configuration includes the configuration of service AAA, home AAA and Access Terminal (AT).

For the service AAA, ZTE shall adopt the method of "*Roam by the mode of digit Analysis*".

EV-DO requires two level authentication to the access terminal (AT) to authorize access to the wireless network i.e. AN-Level, as well as authentication of a subscription to authorize access to the Internet Protocol (IP) network i.e. IP-Level.

Authentication in two Levels as follows:
➢ AN-Level: For this NAI@Domain should be programmed into the AT.
➢ IP-Level: In this level we can dial in with only NAI (i.e. MDN for BSNL network) at the user interface (UI).

2.1 Roam by the mode of digit analysis

By this roaming mode, in the authentication & accounting message sent from PDSN to AAA, the value of NAI is **username**. According to the value of Calling-Station-Id property in the message, AAA judges whether it's local AAA by analyzing the IMSI number; if not, it can get the domain name of home AAA, and transfers this message to home AAA.
In this roaming mode, the service AAA needs to configure: digit analysis, security association of home AAA and IP address of Radius server related to Domain. The home AAA only needs to configure the security association.

Advantages:
➢ MS can dial up from UI successfully using only NAI (10 digit MDN) sans the domain name.

Disadvantages:
➢ Configuration is very tedious as we need to analyze the IMSI range for all the remaining four AAA's. *Meticulous planning of MIN needs to be carried out by Service Provider and avoid haphazard distribution of MIN across different circles to reduce the range of IMSI analysis as IMSI code analysis and routing needs to be carried out for the remaining AAA's in each AAA.*
➢ Load on DB will increase as AAA DB is common for all including Billing unlike MSC. *BSNL needs to migrate the mediation operation through Comverse B&CCS.*

2.1.1 Access Terminal (AT) Configuration

2.2.1.1 AT Programming for AN-Level authentication.
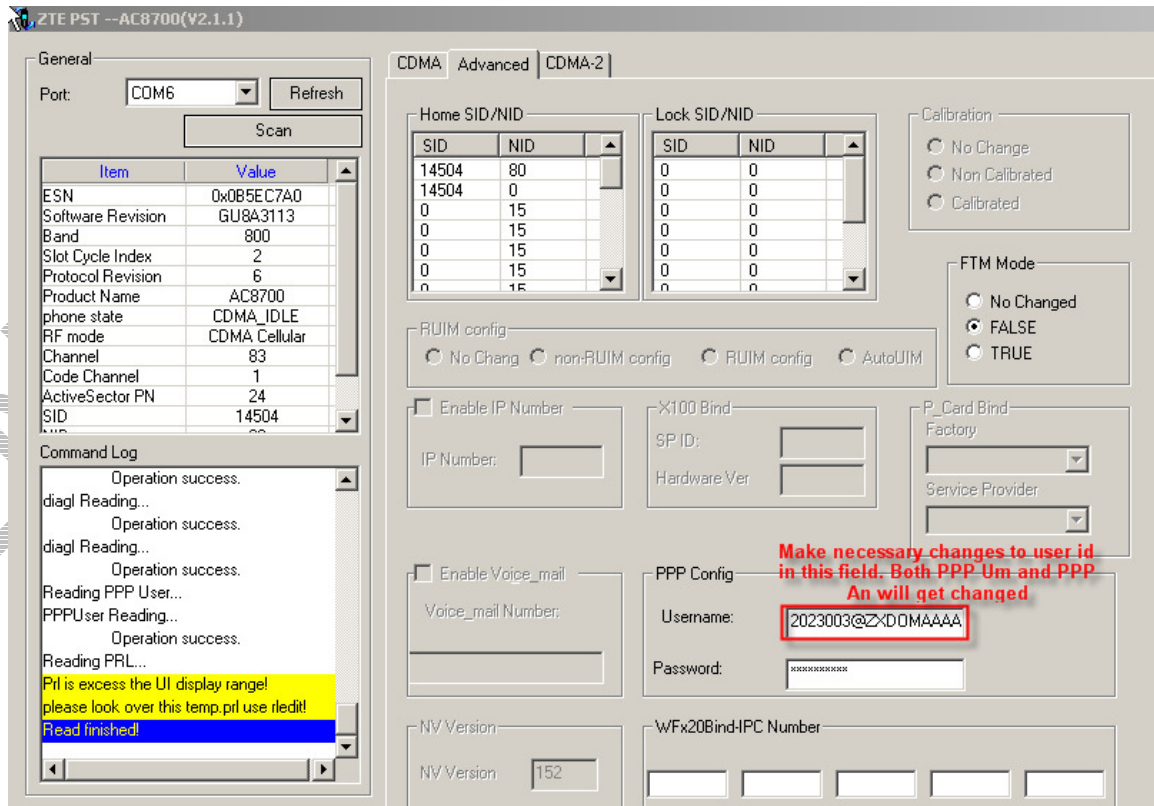
It requires configuring the Data cards or RUIM cards with complete NAI as NAI@domain.

Utilize new PST tool to change user ID, if the Data card used without RUIM card. With new PST tool we need to change user ID only in PPP Configuration as shown above and both PPP Um and PPP AN user ID gets changed.

Software attached.

NEW ZTEIT PST
setup2[1].1.1.rar

2.1.1.2 AT Dial-in for registering into network.
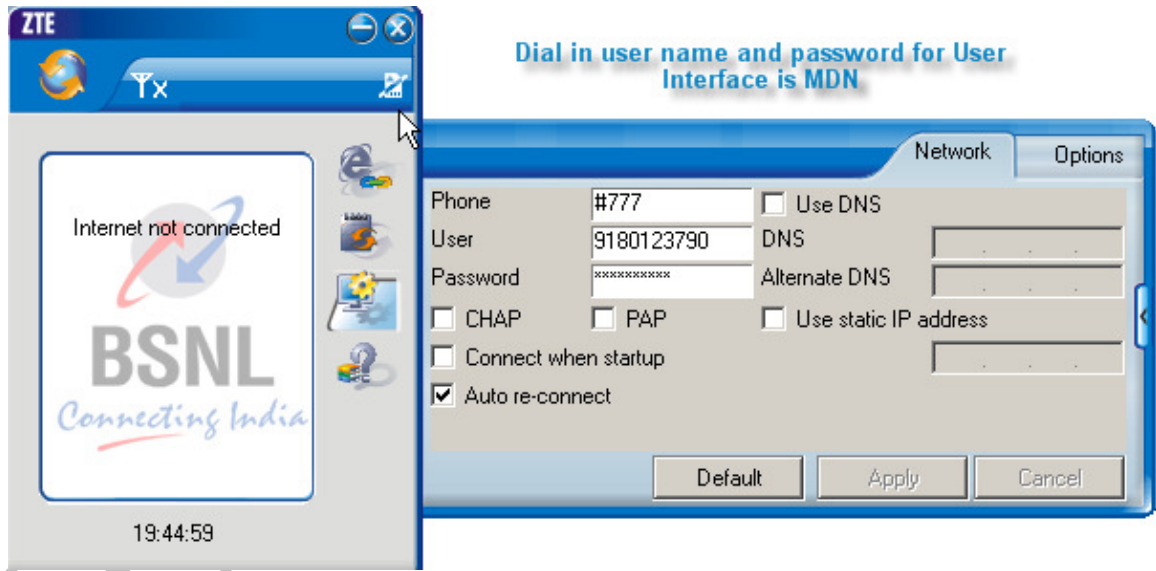
3 AAA Domains in India.

By considering the restriction of NAI characters in RUIM cards, and easy Maintenance, It has been decided by BSNL HQ to change the Domain Names as below.

PCN Location	Domain name	AAA CLU & SQL IP's
Bangalore	ZXDOMAAAADB.COM	192.168.50.150 & 153
Vadodara	AAADOMAIN	192.168.50.150 & 153
Noida	ZXDOMAAAA	192.168.50.140 &143
Kolkata	ZXDOMAAAASVR.COM	192.168.50.150 & 153
Trivandum	KERALADOMAIN.COM	192.168.50.150&153

Existing AAA Domain Names in India for BSNL Network.

PCN Location	commended Domain	AAA CLU & SQL IP's
Bangalore	AAABG.IN	192.168.50.150 & 153
Vadodara	AAAVD.IN	192.168.50.150 & 153
Noida	AAAND.IN	192.168.50.140 &143
Kolkata	AAAKO.IN	192.168.50.150 & 153
Trivandrum	AAAKL.IN	192.168.50.150&153

New AAA Domain Names in India for BSNL Network.

ZTE shall configure the above mentioned domain names across all 5 AAA nodes.

Conclusion

Unique Domain names are very important for achieving Data roaming as based on domain names serving AAA(Visit-AAA) will forward the user information to Home – AAA for AN-level and IP level authentication . Hence domain name is one of the most significant parameter for inter AAA roaming and needs to be unique.

SOP for PDSN DBIO Agent.pdf

Attached SOP for user creation needs to be followed which was submitted earlier for the purpose.

- ✓ ZTE requires 5 Working Days to configure all 4 AAA's and testing.
- ✓ BSNL HQ to Issue a Circular to all respective circles to reconfigure the AT terminals and RUIM cards by using new Domain Names.