

## **An Approach towards Locating a Subscriber in the Network**

Shelly Gahlawat<sup>1</sup>, Shreya Shivani<sup>2</sup>

<sup>1</sup>(ASET, Amity University, India)

<sup>2</sup>(ASET, Amity University, India)

---

**ABSTRACT :** To locate a subscriber in the network, it is necessary to keep updating the location of mobile where it is roaming. And the location of the mobile can be identified by tracing the phone number. After tracing the number, the subscriber is fetched in VLR to locate its position. In this approach, the steps for locating the subscriber in the network are explained.

**KEYWORDS :** Mobile Station, Visitor Location Register (VLR), Temporary Mobile Subscriber Identity (TMSI), Location Area Identifier (LAI), Mobile Subscriber ISDN number (MSISDN)

---

### **I. INTRODUCTION**

With the rapid growth of crimes nowadays, it is necessary for telecommunication field also to take some steps regarding public safety. As mobiles play an important role in day to day life of all, so they can also be use to solve several issues related to crimes. For this, it should be necessary for the switching department of the network, to keep the estimation of the location of subscriber by tracking it. Location updating is a process for keeping the network informed all the positions of mobile. In the field of telecommunication, to keep the track of phone calls for locating the subscriber comes under the observation of switching department. It is initiated by mobile station. And by using user interface and sql commands mobile phone calls can be traced and location of the subscriber can be identified. All the allowing phone calls, SMS, location and other mobile services can be traced by using them. It shows the activities of mobile subscriber. Call tracing can be continuous or it can be on demand. Therefore, by estimating these parameters, location of any subscriber can be identified and data of activities can be collected and estimated if needed. In this paper, we are showing the same approach in which how the phone call can be traced and how the location of a subscriber can be identified in the network by using sql commands which are fired in user interface.

### **II. LOCATION UPDATE PROCEDURE**

The procedure is used to describe updating the location of subscriber as follows-

- When mobile station is on it continuously monitors the information of location which is broadcast by broadcast channel on the network.
- And then it compares the current information with the previous one which was stored in memory.
- Location of the mobile is identified by tracing the call in which all the services provided for subscriber can be traced.
- When mobile moves from one position to another, and if they find their location code of area is different from the previous, it means they are unknown to the VLR then mobile needs to get a TMSI.
- TMSI is mainly used to keep the identity of the subscriber confidential on radio link.
- Then TMSI combined with LAI for identification outside the area.
- Then subscriber is fetched in VLR to locate the position.

### **III. PROPOSED APPROACH**

To find the location of the subscriber in the network, first step is to trace the number whose location is to be identified. Steps for trace evaluation are as follows-

- To open local maintenance terminal. (Fig.1)
- Select the trace management system from left hand side and click user message trace. Then a pop up window will appear, asking for the MSISDN number.
- Put the number to be traced with 91 in front. Click ok. (Fig.2)
- Then after called upon the number various parameters are considered like initial address message, address complete message, release etc.
- Then according to the requirement various parameters can be traced. (Fig.3)

Trace of a call also provides originating and destination point codes.

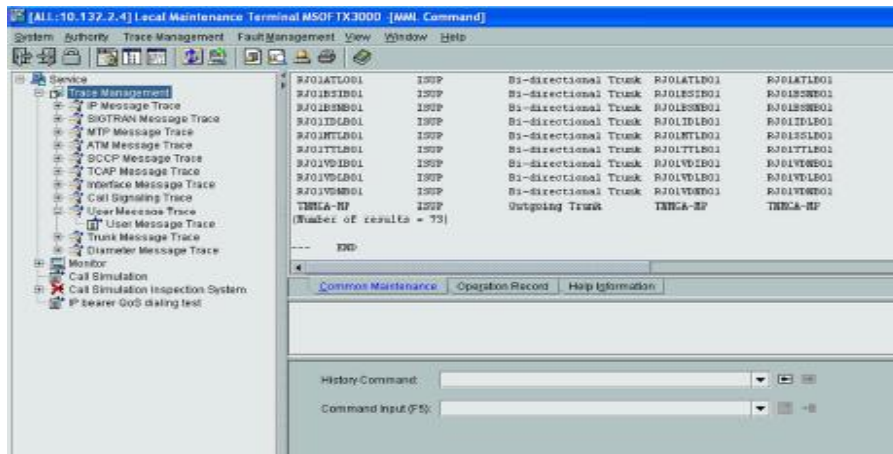


Fig.1 LMT window

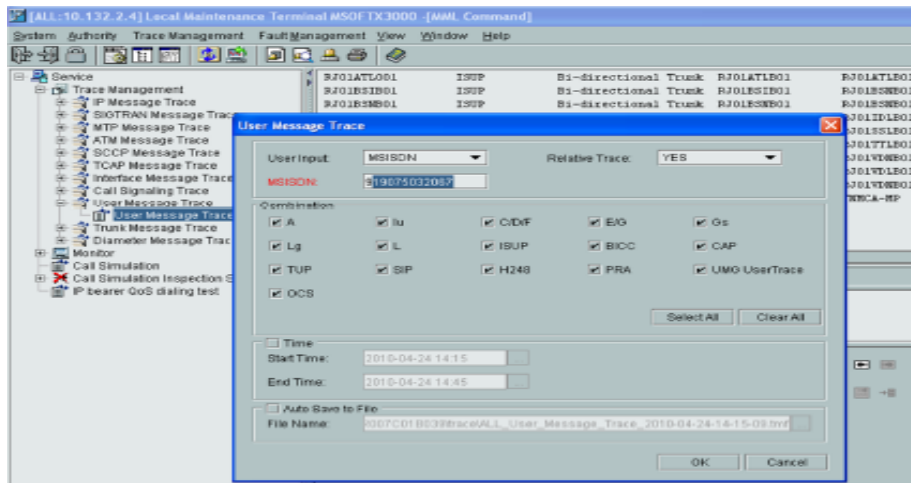


Fig.2 User message trace window

No.	TimeStamp	Msg Interface	Clear Command	Msg Type	Time	Msg Body
95	2010-04-23 12:08:26	+TRC_MI_TO_A	Clear_Command		150374430	00 00 00 41 00 00 00 00 00 00 41 00
96	2010-04-23 12:08:26	+TRC_MI_FROM_A	Clear_Complete		150374435	00 00 00 41 00 00 00 00 00 00 41 00
97	2010-04-23 12:08:19	+TRC_MI_FROM_A	CM_Service_Request		150321859	00 00 00 25 00 00 00 00 00 00 25 00
98	2010-04-23 12:08:19	+TRC_MI_TO_A	Classmark_Request		150321958	00 00 00 25 00 00 00 00 00 00 25 00
99	2010-04-23 12:08:19	+TRC_MI_TO_A	CM_Service_Accept		150321959	00 00 00 25 00 00 00 00 00 00 25 00
90	2010-04-23 12:08:19	+TRC_MI_FROM_A	Classmark_Update		150321982	00 00 00 25 00 00 00 00 00 00 25 00
91	2010-04-23 12:08:20	+TRC_MI_FROM_A	Classmark_Update		150321928	00 00 00 25 00 00 00 00 00 00 25 00
92	2010-04-23 12:08:21	+TRC_MI_TO_H248	ADD_REQ		150344401	00 00 00 8C 00 00 00 00 00 00 8C 00
93	2010-04-23 12:08:21	+TRC_MI_FROM_H248	ADD_REPLY		150344414	00 00 00 8C 00 00 00 00 00 00 8C 00
94	2010-04-23 12:08:21	+TRC_MI_TO_H248	ADD_REQ		150344414	00 00 00 8C 00 00 00 00 00 00 8C 00
95	2010-04-23 12:08:20	+TRC_MI_FROM_A	Setup		150321977	00 00 00 25 00 00 00 00 00 00 25 00
96	2010-04-23 12:08:20	+TRC_MI_TO_A	Call_Proceeding		150321977	00 00 00 25 00 00 00 00 00 00 25 00
97	2010-04-23 12:08:20	+TRC_MI_TO_A	Assignment_Request		150321991	00 00 00 25 00 00 00 00 00 00 25 00
98	2010-04-23 12:08:21	+TRC_MI_FROM_H248	ADD_REPLY		150344433	00 00 00 8C 00 00 00 00 00 00 8C 00
99	2010-04-23 12:08:21	+TRC_MI_FROM_A	Assignment_Complete		150322002	00 00 00 25 00 00 00 00 00 00 25 00
100	2010-04-23 12:08:22	+TRC_MI_TO_MTP	REL		150327023	00 00 00 00 00 00 00 00 00 00 00 00
101	2010-04-23 12:08:26	+TRC_MI_MTP_SIP	ACM		150327459	00 00 00 00 00 00 00 00 00 00 00 00
102	2010-04-23 12:08:26	+TRC_MI_MTP_SIP	CPO		150327467	00 00 00 00 00 00 00 00 00 00 00 00
103	2010-04-23 12:08:26	+TRC_MI_TO_A	Alert		150322513	00 00 00 25 00 00 00 00 00 00 25 00
104	2010-04-23 12:08:26	+TRC_MI_TO_H248	MOD_REQ		150345533	00 00 00 8C 00 00 00 00 00 00 8C 00
105	2010-04-23 12:08:26	+TRC_MI_TO_A	Comment		150323409	00 00 00 25 00 00 00 00 00 00 25 00
106	2010-04-23 12:08:26	+TRC_MI_MTP_SIP	AHM		150328287	00 00 00 00 00 00 00 00 00 00 00 00
107	2010-04-23 12:08:26	+TRC_MI_FROM_A	Connect_Ark		150327441	00 00 00 25 00 00 00 00 00 00 25 00
108	2010-04-23 12:08:26	+TRC_MI_FROM_H248	MOD_REPLY		150345548	00 00 00 8C 00 00 00 00 00 00 8C 00
109	2010-04-23 12:08:44	+TRC_MI_FROM_A	MO_Performed		150324305	00 00 00 25 00 00 00 00 00 00 25 00
110	2010-04-23 12:08:44	+TRC_MI_SIP_MTP	REL		150320665	00 00 00 00 00 00 00 00 00 00 00 00
111	2010-04-23 12:08:40	+TRC_MI_TO_H248	SUB_REQ		150347140	00 00 00 8C 00 00 00 00 00 00 8C 00
112	2010-04-23 12:08:40	+TRC_MI_FROM_A	Disconnect		150324217	00 00 00 25 00 00 00 00 00 00 25 00
113	2010-04-23 12:08:40	+TRC_MI_TO_A	Release		150324217	00 00 00 25 00 00 00 00 00 00 25 00
114	2010-04-23 12:08:40	+TRC_MI_FROM_A	Release_Complete		150324247	00 00 00 25 00 00 00 00 00 00 25 00
115	2010-04-23 12:08:40	+TRC_MI_FROM_H248	SUB_REPLY		150347156	00 00 00 8C 00 00 00 00 00 00 8C 00
116	2010-04-23 12:08:40	+TRC_MI_TO_A	Clear_Command		150324247	00 00 00 25 00 00 00 00 00 00 25 00
117	2010-04-23 12:08:40	+TRC_MI_TO_H248	SUB_REQ		150347193	00 00 00 8C 00 00 00 00 00 00 8C 00

Fig.3 Trace Viewer

Then for fetching a user in VLR to locate the subscriber in the network-

- After tracing the number, execute DSP USERINF command in MSC. (Fig. 4)
- After this various parameters are obtained, from which we only need cell ID, it provides the location and address from which the mobile subscriber is getting the services. (Fig.5)

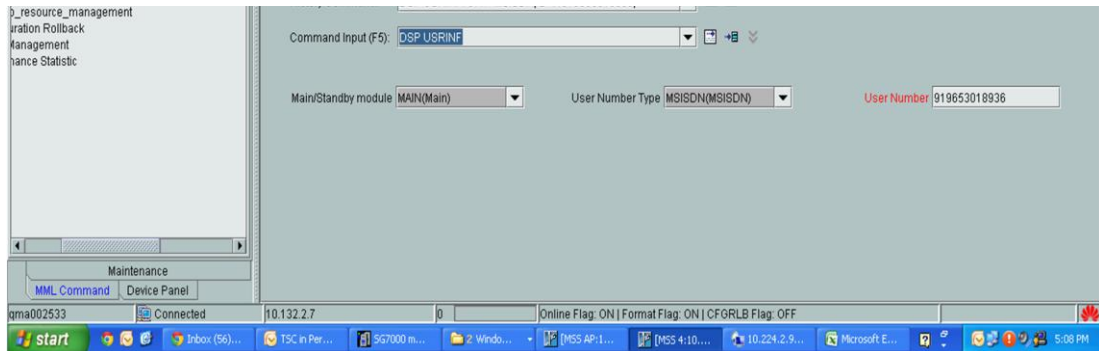


Fig.4 Command Input

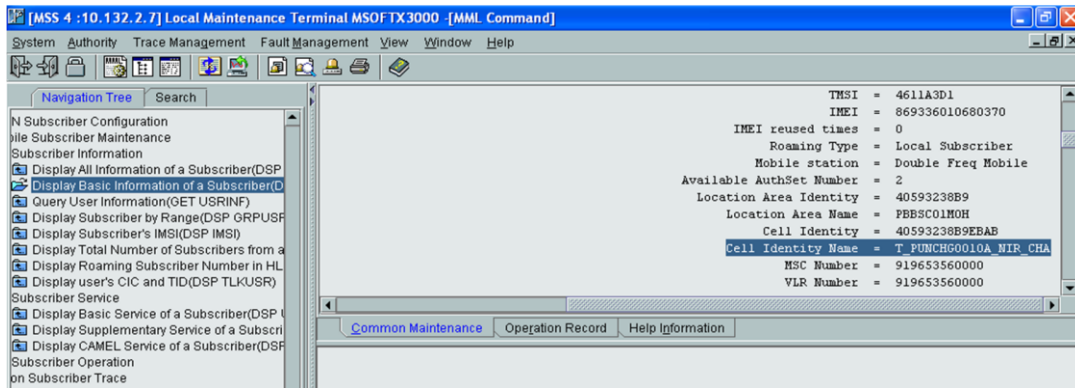


Fig.5 Retrieving Cell Id

#### IV. CONCLUSION

An approach towards locating a subscriber in the network has been proposed by using sql commands on the user interface. Therefore, this approach can be used to find the exact position of the subscriber by tracing phone calls and also provides all other information

#### V. ACKNOWLEDGEMENTS

We are very much thankful to Connect, Quadrant Televentures Limited, Mohali for providing essential facilities and training to complete this project.

#### REFERENCES

- [1] GSM/WCDMA M-MGw R4 Operation and Configuration, Student Book LZT 123 8425 R1A, Huawei Technologies Co., LTD.
- [2] GSM MSC/VLR Operation, Student Text EN/LZT 123 3976 R7A, Huawei Technologies Co., LTD
- [3] GSM Operation Guide – Punjab, Videocon Telecommunications Limited.