

## Software and License Installation

\*Note1: If you have purchased MAPS<sup>™</sup> GSM A IP HD product, you will receive a network appliance with all the necessary PC hardware interfaces, Operating System, required MAPS <sup>™</sup> applications, GL's HD NICs, and licenses pre-installed. And therefore, you will need to only plug-in the monitor, and connect the network appliance to the power outlet. Then connect the USB Hardware Dongle you have received with the shipment, and proceed to verification steps.

- NOW PLUG-IN the USB Hardware Dongle to the PC to the USB 2.0 port of your computer. A red light should appear on the dongle indicating that the device is functioning correctly and ready to use.
- You can verify if the purchased licenses are installed. Navigate to C:\Program Files\GL Communications Inc\GLDONGLE directory, execute appl\_list.exe and confirm that the following licenses are listed:
  - ➢ PKS137 (MAPS™ GSM A IP)
  - PKS102 (RTP Traffic)
  - PKS109 (HD RTP Traffic) \*\*Note2

**\*\***Note2: Additional licenses may be required for optional codecs and other traffic options. Please verify that all licenses purchased are displayed using the appl\_list.exe utility.

### Verification

Functional verification requires a Regular NIC card and a GL's HD card installed in the MAPS<sup>™</sup> HD network appliance.

The regular PC NIC is connected to a managed switch using Ethernet cable as shown in the figure here.

The four ports on GL's HD NIC card are connected in loopback as shown in the figure – P0 connected to P2 P1 is connected to P3 ports.

Regular NIC is used for GSM Signaling and to invoke RTP cores (communication between MAPS<sup>TM</sup> and RtpCore) and GL's HD NIC is used to pump and receive RTP Traffic.



## Figure: Setup for Self-Test MAPS ™GSM A IP HD

Verify that network cables are properly connected. You

GL's HD card connections verification:

should feel and hear a small click while plugging the cables into the port. Also, you can use the monitoring tool (refer to <u>Troubleshoot</u> section) to check the Ethernet links status on GL's HD NIC is UP or DOWN.

For illustration purposes, we assume the IP address of the Regular NIC card is configured as 192.xx.xx.241 (NIC 1).



Invoke 2 instances of **MAPS<sup>TM</sup> GSM A IP HD** application instances (one for each NIC) using the short cut icon reated on the desktop. The configurations below allow **first instance** of MAPS<sup>TM</sup> GSM A configured as **BSC** (Base Station Controller). Similarly, the **second instance** of MAPS<sup>TM</sup> GSM as **MSC** (Mobile Station Controller). Both instances use **Regular NIC IP address** as source and destination endpoints to simulate Location Update and Mobile Originating procedures between MSC and BSC nodes. It can also be configured to handle RTP traffic automatically over signaling.



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#### On HD PC2, MAPS<sup>™</sup> GSMAIP (GUI) – (BSC)

- Invoke *MAPS-GSMAIP HD* application using shortcut icon on the desktop p. This instance of MAPS<sup>™</sup> is configured for *Call Generation*
- While invoking the MAPS<sup>™</sup> GSMAIP instance, verify the following in the Protocol Selection window -
  - > Protocol Standard is set to GsmAIp
  - > Protocol Version to GSM900
  - Select *Node* as *BSC*
  - Select *Transport* as *M3UA*. Click *Ok*
- On the Test Bed Default window, Click Load
   Configuration icon and select TestBedDefault and check for the configuration settings as below:
  - Set M3UA Termination Type to ASP, to handle client association.
  - Set **RTP Simulation** option to **Enable**
  - Set RTP Hardware Interface Type option to GL's High density Interface Card
  - BSC Parameters
     Set BSC IP Address to the Regular NIC IP
     address

Set *MGW IP Address* to the **Regular NIC IP** address

Verify that **BSC Port** is set to **2905** 

Verify that BSC Point Code is set to 5.5.5

MSC Parameters
 Set MSC IP address to the Regular NIC IP
 address

Verify that *MSC Port* is set to 2906

Verify that MSC Point Code is set to 2.2.2

> HD RTP Media Configuration

**Number of RTP-Cores**: Set to 2, and click Apply. For this self-test setup, we are invoking 2 RTP-Cores only.

#### **RTP Core 1 Configurations:**

**RTP Port Index:** By default, set to *Port\_0::4x1G* Adapter.

**RTP Media IP Address:** Specify the RTP Core IP address. (Enter the **Regular NIC IP address** here, Ex: 192.168.1.241)

Gateway IP Address: Set this to 192.168.1.1

#### **RTP Core 2 Configurations:**

RTP Port Index: By default, set to *Port\_1::4x1G* Adapter.

**RTP Media IP Address:** Specify the RTP Core IP address. (Enter the **Regular NIC IP address** here, Ex: 192.168.1.241)

Gateway IP Address: Set this to 192.168.1.1

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- From the main menu, select *Editor* > *Profile Editor*. Click *Load Configuration* icon *main* and select "*MS Profiles*"
  - Select MSProfile0001 profile from left pane  $\geq$
  - Set CM Service Type to Mobile Originating Call Establishment  $\geq$
  - $\geq$ Scroll down to *Traffic Configuration* > set *Traffic Type* to *Auto Traffic File*. This option allows to automatically send and receive voice files.
  - Set the *Traffic Direction* to *TxOnly type*  $\geq$
  - Click on the *Save* icon and replace the *MS Profiles* file. Close the Profile Editor window.

#### Second MAPS<sup>™</sup> GSM A IP HD as MSC (Instance 2)



Invoke *MAPS-GSMAIP HD* application using shortcut icon provide on the desktop. This instance of MAPS<sup>™</sup> is configured for Call Reception

- While invoking the first MAPS<sup>TM</sup> GSMAIP instance, verify the following in the Protocol Selection window -
  - Protocol Standard is set to GsmAIp  $\geq$
  - Protocol Version to GSM900  $\geq$
  - ≻ Select *Node* as *MSC*
  - $\geq$ Select *Transport* as *M3UA*. Click *Ok*
- On the Test Bed Default window, click Load

and select *TestBedDefault Configuration* icon and check for the settings as below:

- $\geq$ M3UA Termination Type is set to SGP, to handle server association.
- $\geq$ Set **RTP** Simulation option to Enable
- Set **RTP Hardware Interface Type** option to GL's High density Interface Card
- > MSC Parameters Set MSC IP Address to the Regular NIC IP address

Set MGW IP Address to the Regular NIC IP address

Verify that MSC Point Code is set to 2.2.2 Verify that MSC Port to 2906

> BSC Parameters Set BSC IP Address to the Regular NIC IP address

Verify that **BSC Point Code** is set to 5.5.5 Verify that BSC Port is set to 2905

> HD RTP Media Configuration Number of RTP-Cores: Set to 2, and click Apply. For this self-test setup, we are invoking 2 RTP-Cores only.

0	Testbed Setup - TestBedDefault_MSC	
Config	Value ^	
MSC Configurations		MSCPort
<ul> <li>M3UA Termination Type</li> </ul>	SGP	Enter Inte
<ul> <li>Enable RTP Simulation</li> </ul>	Enable	2906
<ul> <li>RTP Hardware Interface Type</li> </ul>	GLs High Density Interface Card	12300
- MSC	1	
Le MSC 1		
- MSC IP Address	192.168.1.241	
PI MN Identifier	152.100.1.241	
Mobile Country Code	901	
Mobile Network Code	70	
- MTP Parameters		
H MSC Point Code	2.2.2	
<ul> <li>Signaling Link Selection</li> </ul>	1	
<ul> <li>Network Indicator</li> </ul>	International	
MSC Address Indicator	National	
BSC Parameters		
L Supported BSCs	1	
Supported BSCs 1		
- BSC IP Address	192.168.1.241	
- BSC Port	2905	
- BSC Point Code	5.5.5	
BSC Address Indicator	National	
- MSC Port	2906	
Location Area Identifier	10000	
	1	
HD RTP Media Configuration		
L RTP Cores	2	
RTP Cores 1		
RTP Port Index	Port_2::4X1G Adapter	
<ul> <li>RTP Media IP Address</li> </ul>	192.168.1.241	
Default Gateway Configuration		
<ul> <li>Subnet Mask</li> </ul>	255.255.255.0	
Gateway IP Address	192.168.1.1	
L RTP Cores 2		
RTP Port Index	Port_3::4X1G Adapter	
KIP Media IP Address     Default Category Configuration	132.100.1.241	
Subpet Mark	255 255 255 0	
Gateway ID Address	192.168.1.1	
End User Configuration	MS Profiles.xml	Stop
Lite over configuration	•••• <u>•</u>	

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**RTP Core 1 Configurations:** 

RTP Port Index: By default, set to *Port\_2::4x1G* Adapter.

**RTP Media IP Address:** Specify the RTP Core IP address. (Enter the **Regular NIC IP address** here, Ex: 192.168.1.241)

Gateway IP Address: Set this to 192.168.1.1

**RTP Core 2 Configurations:** 

RTP Port Index: By default, set to *Port\_3::4x1G* Adapter.

**RTP Media IP Address:** Specify the RTP Core IP address. (Enter the **Regular NIC IP address** here, Ex: 192.168.1.241)

Gateway IP Address: Set this to 192.168.1.1

- Select Configuration > Incoming Call Handler Configuration from the main menu
  - > Verify that the *GSMA\_Call.gls* script is loaded against LocationUpdate and CM Request messages.
- From the main menu, select *Editor* > *Profile Editor*. Click *Load Configuration* icon *m* and select "*MS\_Profiles*"
  - > Select *MSProfile0001* profile from left pane
  - Set *Type of Call* to *Terminate MO Call*
  - Set *Service Type for MT Call = Speech Call* to allow voice traffic over signaling
  - Scroll down to *Traffic Configuration* > set *Traffic Type* to *Auto Traffic File*. This option allows to automatically send and receive voice files.
  - Set the *Traffic Direction* to *TxOnly type*
  - ▶ Click on the *Save* icon and replace the *MS\_Profiles* file. Close the Profile Editor window.
- Invoke GlobalProfile.txt file from the installation directories -MAPS-GSMAIP\MAPS\GSMAIP\GSM900\BSC\M3UA\Profiles MAPS-GSMAIP\MAPS\GSMAIP\GSM900\MSC\M3UA\Profiles

and verify that **RTPCoreIDSelection** is set to '1' as shown in the screen. This allows for self-test MAPS-GSM A in loop back mode on GL's HD NIC. To do normal testing, change this value back to '0' and restart MAPS-GSM A instances.

• Now, **Start** the testbed on both MAPS<sup>™</sup> GSMAIP (BSC and MSC) instances and wait for 4 RTP-Core console windows to appear. If the RTP Core console does not invoke with the MAPS<sup>™</sup> TestBed start-up, refer to <u>Troubleshoot</u> section explained in this document.



• Click *Call Reception* <sup>≫</sup> icon from the MAPS<sup>™</sup> main GUI on both instances of MAPS<sup>™</sup> GSM A IP (BSC and MSC) and observe the *Check\_SCTP\_Status.gls* script activated in the *Call Reception* window. On both the MAPS instances, select *Reports* menu > *Link Status* window to verify the link status. Verify that the *SCTP Link* Status is *UP* (indicated in Green color) before placing the call. If SCTP connection is not up, then refer to <u>Troubleshoot</u> section explained in this document.

3	Link Status					
SCTP Connection	Association ID	Source IP	SourcePort	Destination IP		
UP UP	3	192.168.1.241	2905	192.168.1.241		
J						



## MAPS<sup>™</sup> GSM A IP HD (PKS137, PKS109) Quick Install Guide

- At MAPS<sup>™</sup> GSM A BSC, select *Emulator > Load Generation* or click on <sup>™</sup> icon to invoke the Load Generation from main menu
  - > Total calls to Generate by default is set to '\*', indicates no limit
  - > Maximum Active calls to 1000
  - ▶ Leave the Multi-Distributions option disabled.
  - > Select the Statistical Distribution pattern as Fixed from the drop-down list.
  - > Set Call Rate to 250
  - Verify that IuCS.gls script is added under scripts
  - > Verify that all MS profiles are added under profiles
  - Click **Start** button to initiate bulk call generation.
- In the same MAPS<sup>™</sup> GSM A BSC instance, from **Reports** menu -> invoke **Statistics** window. Observe the Call Statistics.
- Also, from Report menu -> invoke User Defined Statistics and observe the Packet Statistics



• Observe that the calls are automatically received at the *Call Reception (MSC)* window running the Rx script.

Call Reception						
Sr No	Script Name	Call Info	Script Execution	Status	Events	Events Profile
4	RTP_Stats_Display.gls		Stop		None	
5	GSMA_Call.gls	IMSI:,90170000000638,CalledNu	Stop	Send_File-Started	Terminate	
6	GSMA_Call.gls	IMSI:,90170000000649,CalledNu	Stop	Send_File-Started	Terminate	
7	GSMA_Call.gls	IMSI:,90170000000651,CalledNu	Stop	Send_File-Started	Terminate	
8	GSMA_Call.gls	IMSI:,90170000000650,CalledNu	Stop	Send_File-Started	Terminate	
9	GSMA_Call.gls	IMSI:,90170000000652,CalledNu	Stop	Send_File-Started	Terminate	
10	GSMA_Call.gls	IMSI:,90170000000654,CalledNu	Stop	Send_File-Started	Terminate	
11	GSMA_Call.gls	IMSI:,90170000000653,CalledNu	Stop	Send_File-Started	Terminate	
12	GSMA_Call.gls	IMSI:,90170000000656,CalledNu	Stop	Send_File-Started	Terminate	
13	GSMA_Call.gls	IMSI:,90170000000655,CalledNu	Stop	Send_File-Started	Terminate	
14	GSMA_Call.gls	IMSI:,90170000000657,CalledNu	Stop	Send_File-Started	Terminate	
15	GSMA_Call.gls	IMSI:,90170000000658,CalledNu	Stop	Send_File-Started	Terminate	
16	GSMA_Call.gls	IMSI:,90170000000659,CalledNu	Stop	Send_File-Started	Terminate	
17	COMA CULU	INCL 00170000000000 C-II-JNL.	C114	fill of the official and the official an	Tanalasta	(
Stop All Abort All 🔽 Show Records 🔽 Select Active Call 🗌 Auto Trash						
Save Column Width F Show Latest						
ASSIGNMENT REQUEST ASSIGNMENT COMPLETE 15:48:45,433000 ALERTING CONNECT CONNECT 15:48:45,433000 CONNECT 15:48:45,433000 CONNECT 15:48:46,444000 CONNECT ACKNOWLEDGE 15:48:46,446000 CONNECT ACKNOWLEDGE 15:48:46,460000 CONNECT ACKNOWLEDGE 15:48:46,460000 CONNECT ACKNOWLEDGE 15:48:46,460000 CONNECT ACKNOWLEDGE 15:48:45,433000 CONNECT ACKNOWLEDGE 15:48:45,434000 CONNECT ACKNOWLEDGE						
Scripts A Message Sequence Event Config Script Row						

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#### Troubleshoot

Check manually the LEDs on GL's HD card. Blinking LEDs indicate traffic activity, and Green LEDs indicate just the link up status

Click NT 3G Tools icon from the desktop and invoke NT 3G

invoke the following monitoring utility. This displays the link status of each SFP Type connection and the auto negotiated link speed Also observe the Tx and Rx traffic statistics on each port after the bulk call simulation.

Link - Link speed (Down indicates cable is

unplugged or SFP module is incompatible)

P - Port number A - Adapter number

Type - Connection type



- "Security Error: Application is not licensed" error indicates a problem with either your dongle or license file.
  - $\geq$ First verify that the dongle is plugged in and the red light is ON
  - Navigate to C: Program Files GL Communications Inc GLDONGLE  $\geq$
  - $\triangleright$ Run haspinfohl.exe. Verify that Status is OK and make a note of the Serial #.
  - Run appl list.exe. Verify that there is a line in the table reading PKS137 MAPS<sup>TM</sup> GSM A IP, PKS102 RTP Soft Core ≻ and **PKS109** MAPS<sup>TM</sup> RTP HD against the dongle serial number you noted above.
  - $\geq$ If the dongle does not appear in *haspinfohl.exe*, verify that it appears as a USB device in the Windows Device Manager. If it does not appear even in the device manager, remove the dongle and plug it into a different USB port, preferably one directly on the motherboard.
- If the SIP/RTP Core console does not invoke with the MAPS<sup>TM</sup> TestBed start-up, check for the following:
  - Verify that the IP Address in the TestBed setup are configured with the proper IP address of the 2 Regular NICs. These  $\triangleright$ should free IP address within the same subnet, and when connected to a switch, no IP Conflicts should be reported. If the system is connected to a LAN, contact your system administrator to avoid IP address conflicts before you perform the steps below.
  - $\triangleright$ RTP Soft Core licenses may not be installed for the dongle used. Run appl\_list.exe available in the C:\Program Files\GL Communications Inc\GLDONGLE directory. Verify that PKS102 RTP Soft Core and PKS109 MAPS<sup>TM</sup> HD RTP are listed.
- If you get the error "Fails to start SCTP Services and associated SCTP Link status is Down", follow the steps below -You should *Turn off Windows Firewall* on Windows® and on any 3rd party Anti-Virus software that may be installed on the PC to allow SCTP Link Status to be up. Turn OFF Windows Firewall - navigate to Control Panel > Systems & Security > Windows Firewall, click Turn Off Windows® Firewall for all networks.

Run *MAPS<sup>TM</sup> application as administrator* – right-click select 'Run as Administrator' option.



# MAPS<sup>™</sup> GSM A IP HD (PKS137, PKS109) Quick Install Guide

• If the Tx and Rx traffic statistics on each port after the bulk call simulation is shoing incorrectly, click



**NT 3G Tools** icon from the desktop and invoke **NT 3G Tools** console window.

- Type the commands as shown in the screen below and from the C:\Program Files\Napatech3\config directory, to open NTservice.ini file.
- Make sure that **Profile** parameter in the file is set to '**TrafficGen'**. If not make this change, save the file in the same location (you will need Administrator priviledges to give write permission to this folder).

0	NT 3G Tools	-	x	
Napatech 30	G Software Tools		^	
Microsoft ( (c) 2013 Mi	/indows [Version 6.3.9600] icrosoft Corporation. All rights reserved.			
C:\Program	Files\Napatech3\bin>cd			
C:\Program	Files\Napatech3>cd config			
C:\Program	Files\Napatech3\config>NTservice.ini			
			$\checkmark$	

	NTService - Notepad – 🗆 🗙
File Edit Format View Help	
[Adaptop9]	
Adapter Upp - NTAE	# NT4E NT2GE NT4E CTD NTDORT4E NT2GE2 NT4GE2 1
AdapterType = N14c	# N146 - N1266 - N146_STD - N1POR146 - N12662 - N14662_1
DiscardSize = 16	# 16 63
HostBufferHandlerAffinity = -2	# -2 7
HostBufferPollInterval = default	# default* - 100 - 250 - 500 - 1000
HostBufferSegmentSizeRx = default	# default* - 1* - 2 - 4
HostBufferSegmentTimeOut = default	# default* - 100 - 250 - 500 - 1000 - 10000 - 25000 - 50
HostBuffersRx = $[4, 16, 0]$	# [x1, x2, 0],
HostBuffersTx = $\begin{bmatrix} 4 & 16 & 0 \end{bmatrix}$	# [v1 v2 0]
TfgModo = NS	# NC* DVTE
Inghoue - NS	# NS = DTTE
MaxFrameSize = 9018	# 1518 10000
OnBoardMemorySplit = Even	# Even* - Proportional
PacketDescriptor = NT	# PCAP - NT* - Ext7 - Ext8 - Ext9
Profile = TrafficGen	# None* - Capture - Inline - CaptureReplay - TrafficGen
SofLinkSpeed = 1G	# 10M - 100M - 1G - 10G
TimeSyncConnectorExt1 = NttsIn	# None - NttsIn* - PpsIn - NttsOut - PpsOut - RepeatInt1
TimeSyncConnectorInt1 = None	# None* - NttsIn - PpsIn - NttsOut - PpsOut - RepeatExt1

• If you cannot resolve the issues, please contact the appointed technical support person. If you do not know the technical support contact, please reach us at <u>info@gl.com</u>.